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Natural Gasoline Industry Must Make New Products, Find New Markets

By Paul Ryan

Article 1

Written Exclusively for National Petroleum News

SOME weeks ago, Mr. D. E. Buchanan, vice president of Chestnut & Smith Corp., in an address, said in substance, that, if some of the oil companies now complaining about the chaotic conditions in the petroleum industry, had wisely spent during the past year an amount of money equal to the loss they now sustain in a few days, these companies would not now be in their present critical condition.

He announced that if this money had been spent to develop new outlets for petroleum products, we would not now be dumping our goods on the market as fuel alone at prices which spell ruin for the entire industry. When such a sound and sensible observation is made by such a thorough student of market conditions, it merits earnest consideration.

In the petroleum industry, we have over $11,000,000,000 invested. And to assure for ourselves profitable markets so as to guarantee permanence to our investment, what have we done?—Not one thing! We have built an industry whose main product—gasoline—has found a market which some one else created and developed without a single effort on our part.

We became accustomed to "letting George do it," when it came to finding markets for us. We are now, for the first time in our modern history, faced with a problem of finding for ourselves profitable markets; and for the first time also we must do our own thinking; other industries are no longer willing to solve our problems for us.

Why should an industry, having an investment of $11,000,000,000 make only one or two products? Why should our industry be absolutely dependent for our very existence upon the policies of Mr. Ford and Mr. Sloan—both worthy gentlemen, but neither primarily interested in the petroleum industry—whose two companies in 1928 will make approximately two-thirds of all the automobiles made in this country? No other industry is so foolish.

The automobile industry is perhaps the largest user of different raw materials in the world, and yet the steel industry puts only 15 per cent of its production into autos, the wood industry sells only 11 per cent of its production of hard wood lumber to automobile manufacturers, the aluminum industry sells only 25 per cent of its production to the automobile industry, the copper industry sells only 13 per cent of its production to the automobile industry and the nickel industry sells only 28 per cent of its production to the automobile industry.

THE oil industry converts about 85 per cent of its raw material into fuels and lubricants—over half of these products for the automobile industry. And the use of petroleum as fuel, although the largest, is the least profitable of all markets. Why do we do it?

We do not lack the money to do otherwise, we do not lack the brains, we have the raw material to make a legion of products and a huge potential market for each product is anxiously waiting to make some profits for us.

The time has come when we must choose between being the servant for the automobile industry, or the masters of our own destiny. We must decide whether we are to continue to make one or two products—fuels and lubricants—or whether we are to turn to the fullest advantage the raw material we have at our command and convert it into other industrial products.

WE MUST decide whether we shall convert our petroleum into fuel—the least profitable product—or whether we shall develop, from our petroleum, chemical compounds—which are most profitable.

It is rather an empty boast for our industry, colossal as it is, to take pride in the fact that we make only fuels and lubricants out of such a rich raw material as we possess. No other industry, equally large, makes so few products; pride and common sense and vigilance for the future, compel them to diversify their products and make profits where possible. Scientists and economists, years hence, will demand that we be exhumed and punished for our criminal waste.

To prove that the idea of other uses for petroleum is no idle dream, it is only necessary to realize

that one of this country's most eminent industrial engineers has, for years, operated a small unit in his own laboratory, where he converts petroleum into products whose market value is several thousand times the value of the products we ordinarily make from petroleum.

Some of these products would help to turn our red ink into black, for a change. It is unwise, economically, that we should try to make all the products which this engineer makes, but we can turn part of our investment to the manufacture of some few products which would, proportionately, yield us a much greater financial return than we are now getting on our investment.

Until now our marketing research has been devoted to finding a territory where we could undersell our competitors with our cheapest products—always destructive; we should now devote our time and energy to something constructive—serving industrial markets already developed with products which we can profitably make and developing new industrial outlets for other products which we can profitably make.

We have advanced geology to a most comprehensive science; we have developed remarkably the facilities of production; we have applied much of our technical ability to our refining, with unparalleled success; and we have always consistently neglected our marketing. Now, we must apply some of our own common sense to our marketing, instead of letting another industry do our thinking for us.

And marketing is the logical place to apply a goodly share of our ability, because all other functions of the petroleum industry merely "swap dollars" until the product is sold to the ultimate consumer.

We hope that, within a few years, the marketing of petroleum products will have attained the status of a science to which sound common sense, clear thinking, good judgment and hard work have elevated geology and refining.

In Bottles Instead of Tank Cars

MAYBE it would not be fair to say that real prosperity for an industry begins when it gets away from selling all its products by the ton and begins to sell some of them by the ounce in a bottle or a pillbox, but it certainly would be true for some. When the market is low for the bulk products sometimes the small volume of high-priced by-products may make the difference between a loss and a profit on operations.

The natural gasoline manufacturer, like the rest of the oil business, has had to sell his liquid product in tank cars for what it would bring. His wild gases, at best, he has burned under stills or boilers and at worst has blown into the air, a total loss.

Could the meat packing industries show a profit if it threw away the horns and hoofs and hair of the animals it slaughters, or even if it burned them as fuel? Probably not. Mr. Ryan points out in the accompanying article, some of the possibilities for the natural gasoline industry to make valuable products out of butane.

In the second of three articles to be published exclusively in NATIONAL PETROLEUM NEWS, Mr. Ryan will tell how petroleum by-products can be made at a price to replace similar products of other industries that are now in wide commercial use. Mr. Ryan was formerly with Chestnut & Smith Corp., Tulsa, and later with Warren Petroleum Co., Tulsa.

In the natural gasoline industry, lately there has been manifested a healthy desire to find new markets for natural gasoline. Formerly, refiners used natural gasoline to blend with their lower grade stocks—and they used a minimum of it—and they paid a price which was dependent, directly or indirectly, upon the price which they received for their own motor fuel. But, obviously, refiners could use in this way only a limited amount of natural gasoline, and as the production of natural gasoline increased faster than the refiners' needs, with the resultant lowering in price, the manufacturers of natural gasoline began to seek new and more profitable markets for their product.

From available data, it has been shown that as the production of natural gasoline becomes greater than 10 per cent of the production of refined gasoline, the price for natural gasoline lowers. Imagine the thoughts of the manufacturers of natural gasoline when they realized that in the past year the percentage increase of natural gasoline production had been one-and-one-half times the percentage increase of refined gasoline production—the natural gasoline industry is thus faced with the dire necessity of obtaining new markets.

There are now two main products from the natural gasoline industry—stabilized natural gasoline and butane. Stabilized natural gasoline is the finished liquid product remaining after proper rectification, whereby all the propane has been removed and the butane reduced to its optimum percentage.

The presence of these gases—propane and butane—tends to increase plant losses, loading losses, outages, and the difficulty in handling by a refiner or jobber.

Stabilized natural gasoline has an initial boiling point of about 95 degrees Fahr., an end point of about 350 degrees Fahr., a gravity of 68 to 70 degrees A.P.I., a vapor tension of about 6 pounds per square inch, and a butane content of less than 10 per cent.

Such stabilized natural gasoline is an excellent fuel for aviation and other high compression engines. In tests made under the auspices of the Natural Gasoline Association, natural gasoline demonstrated its unquestioned superiority over the usual refined gasoline meeting aviation specifications. Such natural gasoline weighs half a pound per gallon less than refined gasoline; it gives about 10 per cent greater r.p.m. to the engine; it gives greater thermal efficiency and insures greater safety of operation, because its greater volatility reduces the liability of stalling the engine.

Such stabilized natural gasoline has been used for several years as a high quality motor fuel. This gasoline, because of its greater volatility, makes a cold engine start more quickly and gives greater acceleration.

Because of the fact that its volatility is greater than that of refined gasoline, it uses less gasoline and more air in the carburetor to produce the same amount of power; a motor operating on this "leaner mixture" obtains a greater thermal efficiency and a greater volumetric efficiency, which result in—most important of all—greater mileage to the motorists.

Such stabilized natural gasoline has been used very effectively as a blending medium with the lower grade refined stocks. It is true that more of such stabilized natural gasoline is required as a blending medium than if "wilder" natural gasoline was used, but the losses on the transportation and handling of unstabilized natural gasoline eliminate any possible profit which might accrue to a refiner if he used less natural gasoline in his blends.

Stabilized natural gasoline blends with refined gasoline to make a most satisfactory motor fuel—if satisfaction depends upon engine performance; even those antiquarians, who still blend for gravity and disregard performance—(nothing else in the world is bought on its weight and not on its quality)—would have a better finished motor fuel, because the absence of an excess of butane would prevent the butane from carrying into the air the valuable constituents

in the gasoline which a refiner would want to sell to his customers.

Those markets for stabilized natural gasoline can be developed, and are being developed by some of the more progressive natural gasoline companies. The markets are comparatively small now, but they are most profitable; as the markets develop the profits will increase. The economics of these products will be treated in a later article.

Butane is the gaseous residue from the stabilization of natural gasoline as mentioned above. It is a paraffin hydrocarbon, having a chemical formula C_4H_{10}; it boils at plus 34 degrees Fahr.; it has a gravity of 103 degrees A.P.I.; it has a vapor pressure of 13 pounds per square inch at 60 degrees Fahr.; it has a heating value of 106,000 B.t.u. per gallon; it has a heating value of 3200 B.t.u. per cubic foot; and it weighs 5.0 pounds per gallon.

The largest—and yet the poorest—market for butane is as an ingredient of domestic gas. Artificial gas, made by various methods, or natural gas, can be enriched by the addition of butane. Butane, having a heat content of 3200 B.t.u. per cubic foot can easly be blended with the manufactured gas, having usually a heat content of 600 B.t.u. per cubic foot.

THE amount of butane to be blended can be easily regulated by automatic meters and controllers; butane, being a gas at ordinary temperatures, involves a minimum of investment for handling.

In contrast with the involved apparatus necessary for the manufacture of artificial gas, and all the expense and trouble involved, the mechanical devices for handling butane are most simple. The present low prices and the expenses of transportation, however, make this market a poor one, unless an adequate supply of butane is convenient to the domestic market. (Refineries located in the larger cities could very profitably sell their butane from their uncondensed still—gases to local gas companies.)

A much smaller market, but a profitable one, is the use of butane for a refrigerant. Some refrigerator companies have realized the superiority of using hydrocarbon gases as refrigerating media. Such a refrigerant should be a gas having a boiling point of approximately zero degrees Fahr.; a mixture of propane and butane would be most satisfactory. The refrigerating companies would gain by getting a cheaper gas than now in use—isobutane—and would also be enabled to use a gas having a more favorable vapor pressure and a better coefficient of heat transfer.

Butane is very valuable as a cutting medium in metal industries. From a small number of tests—after designing a new mixing chamber—butane has demonstrated its superiority over other gases. It makes a cleaner cut, leaving no "burrs" on the edges of the cut metal; it makes a faster cut allowing more metal to be handled; and it makes a cheaper cut since the total cost of cutting by butane is less per square foot of metal than the cost of cutting by any other common gas.

The large potential use for butane is as a base for chemical compounds. Thousands of chemical compounds—each having an attractive market value—can be easily manufactured from butane. Butane can be easily treated with chlorine, to yield butyl chloride; this is really the starting point for the chemical compounds.

The most important of these chemical compounds is butyl alcohol, called in the trade, butanol. Butanol has myriad uses—it is the primary constituent in "Duco" paints and lacquers (it allows easy flowing and quick drying); it is the principal substance in films for cameras; it is the base for many dyes and perfumes; and, above all, it is the main substance used in cheap plastics.

THE present source of butanol is the fermentation of corn starch by bacteria. According to two leading industrial engineers and two prominent chemists, butanol can be prepared from butane on a commercial scale cheaper than it can be produced from the fermentation of corn. The supply of butane from natural gasoline is quite unlimited; the market for butanol is equally unlimited, and growing miraculously; there should be no delay in uniting the product with its market.

These represent a few of the more prominent uses for butane. In the next two articles in this series, quantitative tests will be applied to these markets to show the distribution of the markets and the economic factors involved in obtaining profits from them.

The recent appointment of a market research committee, at the convention in Chicago of the American Petroleum Institute, presages, it is hoped, a new era for the petroleum industry. At least, it is known that profitable industrial markets await the petroleum industry; it is hoped that common sense, clear judgment and hard work, by the brains of the petroleum industry, will bring to these chemical industries the products of the petroleum industry, thereby assuring such chemical industries of satisfactory products and yielding to the petroleum industry profitable markets which will guarantee its future prosperous existence.

Oil Well Supply Involved In Pipe Merger

PITTSBURGH, Jan. 20.—Oil Well Supply Co. is involved in a merger in which two pipe companies are combined and a large portion of Oil Well's common stock was sold, it was made known this week.

Spang, Chalfant & Co., capitalized at $7,000,000, bought the Standard Seamless Tube Co., a Fownes company capitalized at $2,000,000; and also bought a dominant interest in the Oil Well Supply Co. from the personal holdings of J. H. Hillman, Jr., Pittsburgh banker. Spang, Chalfant & Co. and Mr. Hillman control Oil Well Supply Co. The equity of Oil Well Supply Investment Co. in Oil Well Supply Co. is intact. Amounts involved in the stock exchange between Spang, Chalfant and Mr. Hillman were not announced.

Standard Seamless Tube Co. has a capacity of 300,000 tons a year of seamless pipe and Spang, Chalfant & Co. of 300,000 tons a year of butt and lapweld pipe. Oil Well Supply Co. with about 90 stores becomes distributor for the combined pipe companies who will operate under the name of Spang, Chalfant & Co.

Index to Coming Meetings

Michigan Independent Oil Men's Association, Statler Hotel, Detroit, Feb. 2, 3.

North Dakota Petroleum Association, Waldorf Hotel, Fargo, Feb. 2, 3.

Iowa Independent Oil Men's Association, Savory Hotel, Des Moines, Feb. 8, 9.

Illinois Petroleum Marketers Association, Hotel Abraham Lincoln, Springfield, Ill., Feb. 15, 16.

Ohio Petroleum Marketers Association, Neil House, Columbus, O., Feb. 22, 23, 24.

Western Petroleum Refiners Association, Muehlbach Hotel, Kansas City, Mo., March 6.

American Oil Men's Association, Hotel Stevens, Chicago, March 6, 7 and 8.

Independent Oil Men of America, annual election, Stevens Hotel, Chicago, March 19, 20, 21.

American Association of Petroleum Geologists, business and technical sessions in San Francisco, March 21, 22, 23; field trips and entertainments, Los Angeles, March 24, 25.

American Oil Burner Association, Hotel Stevens, Chicago, April 3, 4, 5, 1928.

National Petroleum Association, Cambridge Springs, Pa., April 19, 20.

Producer Suggests State Board To Regulate Output

Staff Special—By Telegraph
WASHINGTON, Jan. 24

THE Committee of Nine yesterday began public hearings for those interested in making oral suggestions, which is a part of the committee's program, in considering proposals for oil conservation.

Only one man, Charles A. Son, an Independent producer of Los Angeles, had asked to be heard. He read a paper describing producing conditions in California and was questioned for more than an hour on phases of his proposals for a combination of federal and state regulation of production, including one proposal to have petroleum declared a public utility.

Some of the undivulged communications received by the committee contained offers of patents or methods for the recovery of more oil from the producing sands. These will not be considered, members of the committee said, because they believe picking of specific methods of production is not a function of this body. Contents of communications which have bearing on the work at hand—deciding whether the production division needs legislative aid and if so what the legislation should be—were not given out and will be held confidential until the committee reaches at least preliminary conclusions, said Henry M. Bates, chairman of the committee and dean of the University of Michigan law school. The personnel and methods of procedure of the committee were published in NATIONAL PETROLEUM NEWS, issue of Dec. 14, page 21.

Sitting on the side lines at the public session Monday were R. L. Welch and W. R. Boyd, Jr., New York, of the American Petroleum Institute; Fayette B. Dow, Washington counsel of the American Petroleum Institute; and Mark L. Requa, who has been in Washington since the Chicago convention of the American Petroleum Institute, watching all moves toward petroleum conservation. It is understood Mr. Requa has a conservation plan that awaits the outcome of deliberations of the committee of nine before he will announce it.

MR. SON charged that a virtual monopoly existed in the production of crude oil in California. He said eight refiners owned 8,599, or 76 per cent, of the 11,506 producing wells there and 410 Independents only 2,907, or 24 per cent. Of the 410 Independents, 176 owned only one well each, 183 owned two to 10 wells each, 32 owned 11 to 20 wells each, and only 22 owned more than 20 wells each. The statistics were for 1926, the latest available, he said.

He said also he could not get the production figures but believed they were proportionately the same as the number of wells held. The eight refiners are the Standard Oil Co. of California, Union Oil Co., California Petroleum Corp., General Petroleum Corp., Pan-American Western Petroleum Co., Shell Co., Associated Oil Co., and the Richfield Oil Co. Their names, however, were not filed with the committee.

He gave his opinion, as a lawyer, that states under their police power could restrict production in times of a glut market. He would have a state board, probably a state oil commission, decide how much oil could be produced and curtail if deemed necessary production in all wells by a certain percentage with the possible exception of wells producing not more than 15 barrels daily which would be regarded as non-competitive.

THIS plan he asserted, was fairer than the Doherty plan for unit operation of pools because it would protect the wildcatter and not force the wildcatter or small Independents to sell out to a large company which could hold the pool in reserve until such a time as the crude would be needed. Under his plan, he said, the state commission could rule that production should be curtailed 10 per cent, for example, and all wells including the new well would have to be pinched in 10 per cent. Under the Doherty plan, he said, the new well would have to be shut in.

This system, he also argued, would preclude any necessity for price fixing because economic laws likely would take care of that if production were regulated. He said no change in the Sherman Anti-trust act would be necessary because operations under his plan would not interfere with interstate commerce.

He advocated permissive state legislation to enable producers to market their crude cooperatively and federal legislation embodying these proposals to cover production on the public lands.

Regulation of marketing is not needed now, Mr. Son said, but may be in three or four years. Marketing regulation, he continued, would involve an exception to the Sherman act and similar state statutes. He said franchising of refiners and marketers would be necessary if marketers were declared a public utility and that would involve government regulation of prices.

"As a producer, my only interest in referring to this possible phase of the relationship between the manufacturer of the refined products and his consuming public is to say that the waste in the present method of distribution, such as unnecessary service station duplications of all phases of facilities, is being reflected at present not in the profits of the refiners, but in the low price of crude," he said. "In other words, that burden of this waste is shifted along the line of least resistance, not to the consuming public, but to the unorganized and helpless Independent producers and the owners of producing lands."

After concluding his address Mr. Son said a cruel weapon, the price club, had been used to restrain production in California. This price club he argued, tended toward monopoly. An attempt to use it in the Mid-Continent, he said, had broken down. He said, that regardless of what the committee does an effort will be made to regulate production in California by law.

Thomas A. O'Donnell, member of the committee and chairman of the board of the California Petroleum Corp., challenged Mr. Son's assertion, there was a monopoly in California.

"Competition among the eight large refiners in California is the keenest in America," Mr. O'Donnell declared. Overexpansion and overproduction are the cause of the trouble. These companies are owned largely by the public, no single interest owns any two, no more than five per cent is owned by any one person.

"It is wrong to think of the Standard Oil Co. as a monopoly; there seems to be a confusion between what is a monopoly and what is a large business."

Mr. Son retorted by saying fear on the federal trade commission had prevented a simmering down of the eight refiners to three or four.

THE question of waste arose and with some confusion as to what was really meant by waste. Judge Olney said his idea of waste was when oil was brought out of the ground in such a manner that a great deal was left behind. One of the great problems, he said he gathered from reading geological survey papers, was to get a method by which remaining oil could be brought out.

Mr. Son insisted there probably would be no permanent waste from this cause but recovery of the remaining oil would be more costly. Judge Olney replied that he believed unit operation was the way to avoid leaving so much oil in the sands. Mr. Son again protested this plan was unfair to the Independent producer.

While members of the committee did not commit themselves against the Son proposals, their questions clearly indicated that they opposed the idea of making production a public utility.

Fourth Major Pool of Seminole Area Believed To Be in Making

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Jan. 21

"EIGHT-FIVE," the only name the prospective major pool in the Seminole district has, is on the verge of breaking into real prominence. The imminence of the development may be abated by the operators—strong efforts are being exerted to bring into accord all the lessees in the township.

As the situation now stands there are two Wilcox producers in the township, the next one west of 8-6, which contains the Bowlegs and part of the Little River pools. One of these wells is the Barnsdall Oil Co. and Wolfe Oil Co.'s No. 1 Fife, in the NE NE NW of 14-8-5. Wolfe Oil Co. is the lessee and Barnsdall is operating. This well came in early in December, estimated good for 2,500 to 3,000 barrels. It is shut in except one day each week when it is opened long enough to flow 700 barrels, thereby making the 100 barrels per day provided in the operators' agreement which applies to several wildcat pool openers in the Seminole district.

The second well of the township is a development of the past week. It belongs to the Indian Territory Illuminating Oil Co. and is in the SE SE SW of 16-8-5, on state land. The two wells are about two miles apart in an air line. The I.T.I.O. well at this writing has not been completed for large production because of mechanical troubles but, being only three or four feet in the real pay (it had oil in the Simpson formation overlying the Wilcox) it is expected to better its performance when deepened.

Opinion, geological and executive—the latter being something of a reflection of the former—has settled on this area as one to produce a major field. One new field after another has been opened in the past six months and has been throttled under the agreement. No real alarm was caused by these; they were assigned to the minor pool class. But 8-5 has been looked upon with apprehension for months—even prior to the discovery of Wilcox sand production. It will be remembered that the I.T.I.O. well was started a year or so ago and was shut down when it reached the Hunton lime. It was running high structurally at that point and the owners, having their hands full in Seminole City pool and Bowlegs, thought it best to defer the bringing in of another pool.

If 8-5 measures up to expectations it will mean four major pools in an area two townships square. Seminole City in 9-6, Earlsboro in 9-5, Bowlegs in 8-6 and the new one in 8-5 would mean four pools arranged in nearly a geometric design. Not quite, for Earlsboro lies in the north part of 9-5 while Seminole City is southeast of it, occupying the southeast fourth of 9-6. Bowlegs is directly south of Seminole City while the vestiges of the new pool are in about the same position in 8-5 as Bowlegs is in its township.

BUT, it is not merely because the 8-5 pool would fill in the blank space of the rectangle that the predictions are made as to its future importance. There is evidence that a large structural "high" lies under part of this township. Deep synclinal area has been proved by drilling to the north of the township, between 8-5 and the Earlsboro pool and the same is true of the next township south. And between these two indicated troughs are the two wells, two miles apart, which could hardly have been arranged by the hand of man to occupy so nearly the same position

BULLETIN

By Telegraph

TULSA, Jan. 23.—Indian Territory Illuminating Oil Company's important well in 16-8-5 Seminole district has 2500 feet of water in the hole from the Wilcox sand topped at 4,301 feet and drilled three feet. It will plug back to the Simpson formation where there are several feet of saturated pay. While this water showing is important it does not remove the possibility of a major pool in the area. It will be remembered that the Earlsboro pool started off in about the same way.

Township 8-5, showing two producing and one drilling well

structurally. They indicate a "high" of considerable proportion, at least in northeast-southwest trend.

The similarity between these wells stratigraphically is so great as almost to be unbelievable. Here are the figures:

Barnsdall Oil Co. Well

Sec. 14-8-5

Elevation 941 feet

	True Depth	*Subsea Level*
Hunton	4085	3144
Sylvan	4090	3149
Viola	4173	3232
Simpson	4236	3295
Wilcox	4291	3350

Indian Territory Well

Sec. 16-8-5

Elevation 965

	True Depth	*Subsea Level*
Hunton	4085	3120
Sylvan	4115	3050
Viola	4195	3230
Simpson	4235	3270
Wilcox	4301	3336

It will be noted that the Barnsdall well had only 5 feet of the Hunton lime whereas the I.T.I.O. well had 30 feet. As they finished, I.T.I.O. got the Simpson formation 25 feet higher than did the Barnsdall, but as this member was 11 feet thicker in the I.T.I.O. well, it finished only 14 feet higher on the Wilcox than did the Barnsdall.

Two wells in the next township south of 8-5 supply the data on which to base conclusion as to the existence of a cynclinal area. One of these is the Amerada Petroleum Corp. test in the SE SE NW of 2-7-5. It was drilled to total depth of 4,775 feet. It found the top of the Sylvan nearly 450 feet lower than did the I.T.I.O. well in 8-5. Subsurface calculations in this territory are ordinarily based upon the Viola lime, but the Amerada well encountered a peculiar condition. It went directly from the Sylvan shale into the Simpson dolomite, the Viola being absent.

THE other well to the south of 8-5 which is important is the Sinclair Oil & Gas Co. test in the NW NW SE of 7-7-5, which was drilled to total depth of 4,571 feet. It found the Viola at minus 3,432 feet, or 202 feet lower than in the I.T.I.O. well and the top of the Wilcox at minus 3,699 feet, or 366 feet lower than did the I.T.I.O. well.

To the north the dip is more precipitate. The Empire Gas & Fuel Co.'s failure in the NW SW of 34-9-5, drilled to total depth of 5,045 feet, found top of the Viola at minus 3,960 feet, 730 feet lower than did the I.T.I.O. well and top of the Wilcox at minus 4,078 feet, 742 feet lower than in the I.T.I.O. test.

Still another test in the same area again marks the difference in subsurface levels and establishes the "high" of the tested part of 8-5. The Independent Oil & Gas Co.-Deaner well in the northeast corner of 32-9-5, drilled to total depth of 4,848 feet, found the Viola at minus 3,775 feet, or 545 feet lower than the I.T.I.O. well and the Wilcox at minus 3905 feet, or 569 feet lower than the I.T.I.O. well.

A producing well that is linked in the discussion of the probable extent of the pool is that of the Gypsy Oil Co. in the SE SE NE of 7-8-6, about a mile and a half northeast of the Barnsdall well in 14-8-5. This well is producing under the 100 barrel per day plan, but was flowing at the rate of 160 barrels per hour when pinched in. It is 100 feet lower on the Viola than the Barnsdall well and 111 feet lower on the Wilcox. Its diagonal offset southeast was a Wilcox failure and was about 60 feet lower on the Wilcox than was the Gypsy well. Whether the Gypsy well is an eastern outpost of a field which will contain the Barnsdall and I.T.I.O. wells or is in a separate pool is to be determined. In a direct line between the Gypsy and Barnsdall wells and a half mile from the latter, The Texas Co. is drilling what will be the third Wilcox test for 8-5. This is in the SW SW SW of Sec. 12 and should be completed in about 30 days.

There is a probability that 8-5, even though it proves to be a major pool, will be developed at a slower rate than were Seminole City, Earlsboro and Bowlegs pools. Operators are studying plans for the drilling of one well to 20 acres when development gets under way, which is half the number drilled in the other pools. The other locations would be drilled later. Thus the production would be brought on the market at a much slower rate than was the case in the three other major pools of the district.

Spencer Petroleum Holds House Warming

CHICAGO, Jan. 21.—To celebrate the moving of headquarters from 122 S. Michigan Ave. to new quarters at 176 W. Adams St., Spencer Petroleum Co., held a "house warming" on Jan. 17. Office doors were open from noon on.

It was a business like social affair. Invitations were original letters on Spencer Petroleum Co. stationery, signed by Frank Spencer, the president. Mr. Spencer, Holger Jensen, the vice president, and W. W. Martin, secretary and treasurer, were in the receiving line.

Refreshments were served. Howard Johnson presided over a steam table of hot roast beef and pork. The telephone girl ran a free cloak room, and stenographers and clerks were temporarily converted into waiters.

More than 100 Chicago oil men visited the new office and memorized the new telephone number (Franklin—5540). The guests came and went all afternoon and evening.

E. W. Clark Appoints Conservation Board

LOS ANGELES, Jan. 21.—Pres. E. W. Clark, of the American Petroleum Institute, also executive vice-president of the Union Oil Co. of California, Jan. 18 appointed a committee of eleven oil men to make a study of the gas conservation movement in California and to work with and co-operate with the governor's gas conservation committee.

This action was taken by Mr. Clark as a follow-up of the gas conservation meeting held in San Francisco, Jan. 5, at which time the oil men present and meeting with the governor's committee, approved the plan of action as outlined in Gov. C. C. Young's letter presented to the committee. This letter was published exclusively in the Jan. 11 issue of NATIONAL PETROLEUM NEWS, page 24.

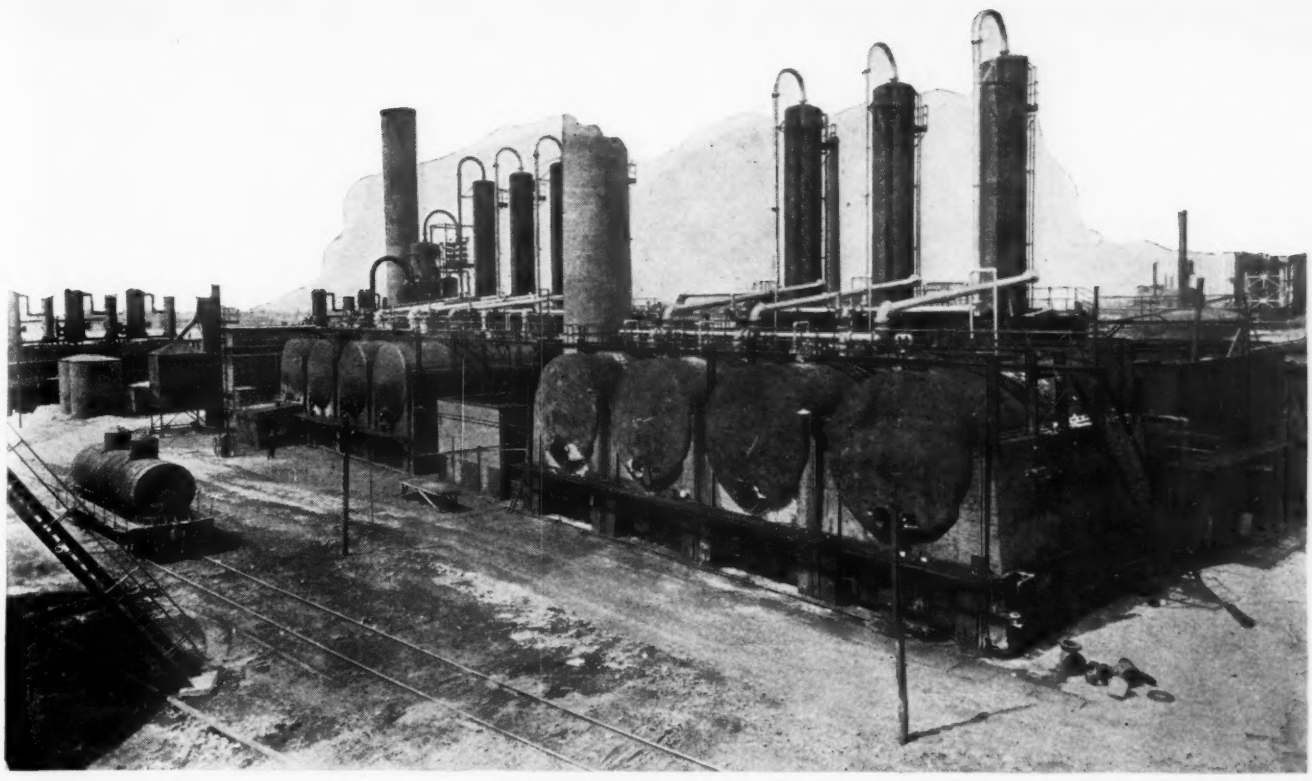
The oil men's committee named by Mr. Clark, will hold a preliminary session at the Union Oil building in Los Angeles, Jan. 23, at 2 p.m., when the matter of appointing subcommittees to make studies of conditions in individual fields will be considered, and it is possible that the members of the sub-committees will be named.

It is the present plan for the subcommittees to be composed of three to five persons to be selected from the companies active in these fields. Mr. Clark in his letter, gives the list of those who compose the regional committee for the Pacific coast for the Marland gas conservation committee, since many of these men gathered much data that will be of use in reaching conclusions. The subcommittees will make their investigations and report back to the general oil committee after which the general oil committee will meet the Governor's committee for final decisions.

The oil committee is M. E. Lombardi of the Standard Oil Co. of California, chairman, Wm. Reinhardt, Shell Co. of California; Chester W. Brown, Union Oil Co. of California; R. D. Bush, state oil and gas supervisor; Wm. Moeller, Jr.. Midway Gas Co.; W. L. McLaine, General Petroleum Corp.; John McKeon, Richfield Oil Co.; L. J. King, Associated Oil Co.; Dana Hogan, Pan American Petroleum Co.; Charles Dore, Superior Oil Co. and Paul Grimm, George F. Getty, Inc.

L. A. Crandall Dies

LINCOLN, Neb., Jan. 21.—L. A. Crandall, formerly a salesman for Vickers Petroleum Co., Wichita, Kan., is dead. He died about a week ago at his home in Kansas City. His friends say he had never fully recovered from a protracted illness of last year.



At the left, the crude still battery of the Paragon refinery. The pipe still with its fractionating equipment can be seen beyond the farthest shell still on the left. At right rerun battery for Dubbs pressure distillate. There are four stills shown but only three are hooked up with the towers

New Equipment Brings Refinery a Profit After Seven Years of Losses

By Paul Truesdell
N. P. N. STAFF WRITER

CLEVELAND, Jan. 23

THE Paragon Refining Co., Toledo, O., made a profit on its operations in 1927 and that was the first year since 1920 that it had shown a profit. This is according to the statement of C. J. Leroux, secretary and treasurer of the company.

Probably the chief reason that the company's books on Dec. 31 showed a balance in the black column was that since May, 1927 it had been operating a plant embodying the latest in refinery construction and operation practice. Before that the refinery was, it might be said, partly ancient and partly modern. Now it is all modern.

A contributing factor to the making of a profit last year probably is the fact that the company buys its crude advantageously from the Prairie Oil & Gas Co., or most of it, and it is delivered into the refinery yard by pipe line. Another is that most of the refinery's products—about 75 per cent—are sold at retail through the company's own stations which are scattered over Ohio.

A factor against the showing of a profit last year was the exceedingly low tank car price of gasoline f.o.b. Group 3 and considerable price cutting in the retail end which prevailed in various parts of Ohio as well as elsewhere in the country.

But anyway the company made money.

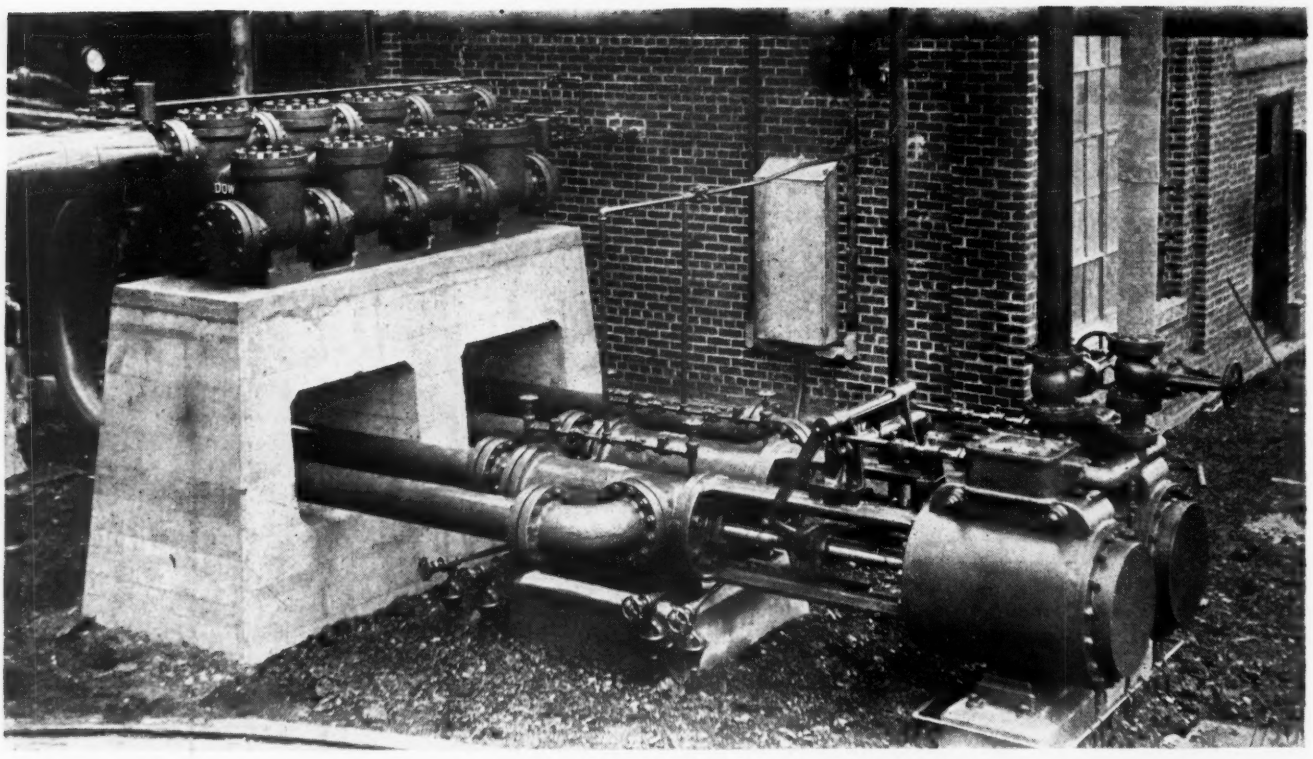
Protecting Refinery Equipment

ONE thing they do at the Paragon refinery that I have seldom seen at other plants, is to erect shelters over their machinery. Wherever they have a pump or something of that kind sitting out in the open, they put up a little sheet steel building over it. These are made of galvanized steel sheets and framed with light steel angle irons.

It would seem that in the case of an expensive pump, for instance, such a shelter would pay for itself in very short time by reducing the upkeep cost and the wear and tear of the unit—P.T.

COMPANY officials are proud of their refinery. Their primary crude distillation equipment is such that Mr. Leroux believes he can and does make gasoline as cheaply as anybody and cheaper than a great many.

The Dubbs cracking plant in the Paragon refinery embodies the latest wrinkles in Dubbs construction and operating practice. It is a show place. Whenever the Universal Oil Products Co. has a distinguished visitor from abroad who is anxious to study the Dubbs process in action, he is taken to the Paragon plant. Refinery Superintendent C. W. Luton says that in the past few months the refinery has been visited by oil technologists from half a dozen countries



One of the Dow hot oil surge pumps used on the Dubbs cracking units at the Paragon Refining Co. plant. Each of these pumps is housed in a little steel building of its own

of Europe and South America.

The Paragon refinery is one of the oldest of the Independent plants. It was built about 1887 or 1888. A good deal of the original equipment remained in place in the plant until about three years ago. In January, 1925, the plant was swept by fire. In a story published in NATIONAL PETROLEUM NEWS (page 70, June 17, 1925 issue) the ravages of the fire were described. The fire demonstrated that the plant had been built in the most favorable possible manner for complete destruction by fire.

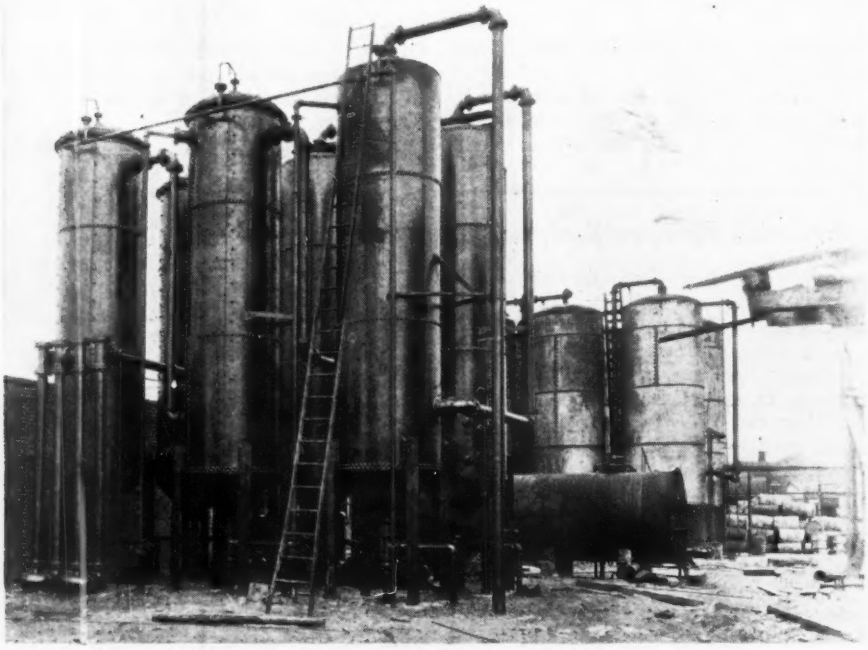
Following the fire a partial rebuilding program was decided on and a contract let to the Cross-Widdell Engineering Co. of Kansas City, which company was made up of the Cross brothers, Walter and Roy, and H. E. Widdell, now head of the Widdell Engineering Co.

A battery of four 750-barrel shell stills was put in, each equipped with a Cross-Widdell bubble tower, the bubble tower idea being considerably less familiar to the refining industry then than it is now. These four stills can run 7500 barrels a day of crude in connection with a 3500-barrel a day Foster pipe still with which it is hooked up. The bubble tower temperatures and consequently the end points of the products are automatically controlled by Brown instruments.

A continuous closed treating plant also was built at that time for sweetening the gasoline by the doctor treatment. Continuous closed treating systems also were much less common then than they are now but the fire which had destroyed the old refinery had taught a lesson in this regard because the blaze was started by the ignition of the vapors escaping from the open top of an agitator containing 1200 or 1400 barrels of gasoline under treatment by blowing.

This battery of shell still worked fine but the plant was not balanced and it still failed to show a satisfactory profit. Inasmuch as the contractors on the first construction job had done so well, the refining company turned to Mr. Widdell for advice as to what further equipment they should put in to give a balanced and profitable plant operation. Mr. Widdell in the meantime had parted with the Cross brothers, organized his own company and affiliated it with Arthur G. McKee & Co.

As a result of the conferences, a contract was let for the installation by the Widdell company for three more shell stills equipped with bubble towers, two double Dubbs units and another continuous closed treat-



Acid and caustic gasoline treating plant at the Paragon refinery. In the background at right is the old doctor sweetening plant

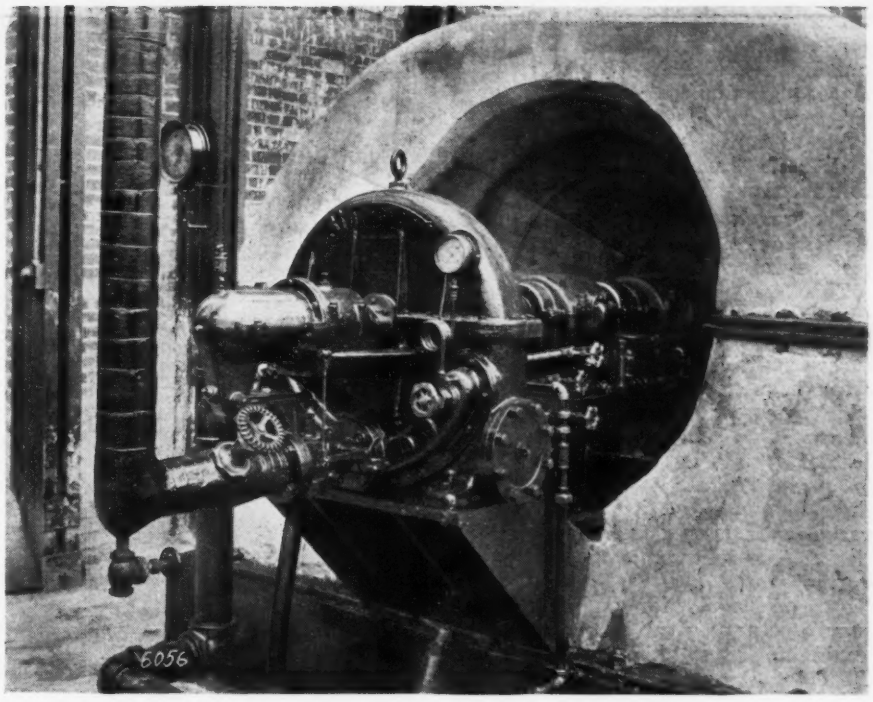
ing plant for treating the Dubbs pressure distillate with sulfuric acid and caustic soda. Acid-treatment was unnecessary at the refinery before the cracking plant was put in.

The operation of the plant as described by Superintendent Luton is as follows: The crude on the way to No. 1 still of the crude battery passes through a heat exchanger countercurrent to the residuum leaving No. 4 still at about 575 degrees Fahr. The crude is brought by this waste heat up to a temperature of about 375 degrees Fahr. which is sufficient to take off the light cuts so that No. 1 still is not fired.

The product taken overhead from No. 1 tower is a 66-68 gravity gasoline, 85 initial and about 375 end point. No. 2 tower gives a gasoline of 58-60 gravity, 120 initial and 425 end point; No. 3 tower, a naphtha of 48-52 gravity, 180 initial and 437 endpoint. The stream from No. 4 tower is kerosene and the reflux from that tower is a 38-40 straw distillate which is sold for domestic heating purposes.

The flow from still to still is by gravity. When the pipe still is in use, which it is not now, the bottoms from No. 4 still are pumped through the pipe still where the temperature is brought up to about 800 degrees. A small amount of cracked distillate is produced at this temperature and a considerable yield of gas oil, which makes good charging stock for a cracking plant.

Now, however, the bottoms from No. 4 still are fed direct to the Dubbs cracking plant. The Dubbs units, each equipped with two 10 by 40-foot reaction chambers which are both working at once, are running 70,000 barrels a month, on the non-residuum basis. In the present state of the market and under his conditions, Mr. Leroux does not believe in making any fuel oil. So he runs down to coke in the cracking plant.

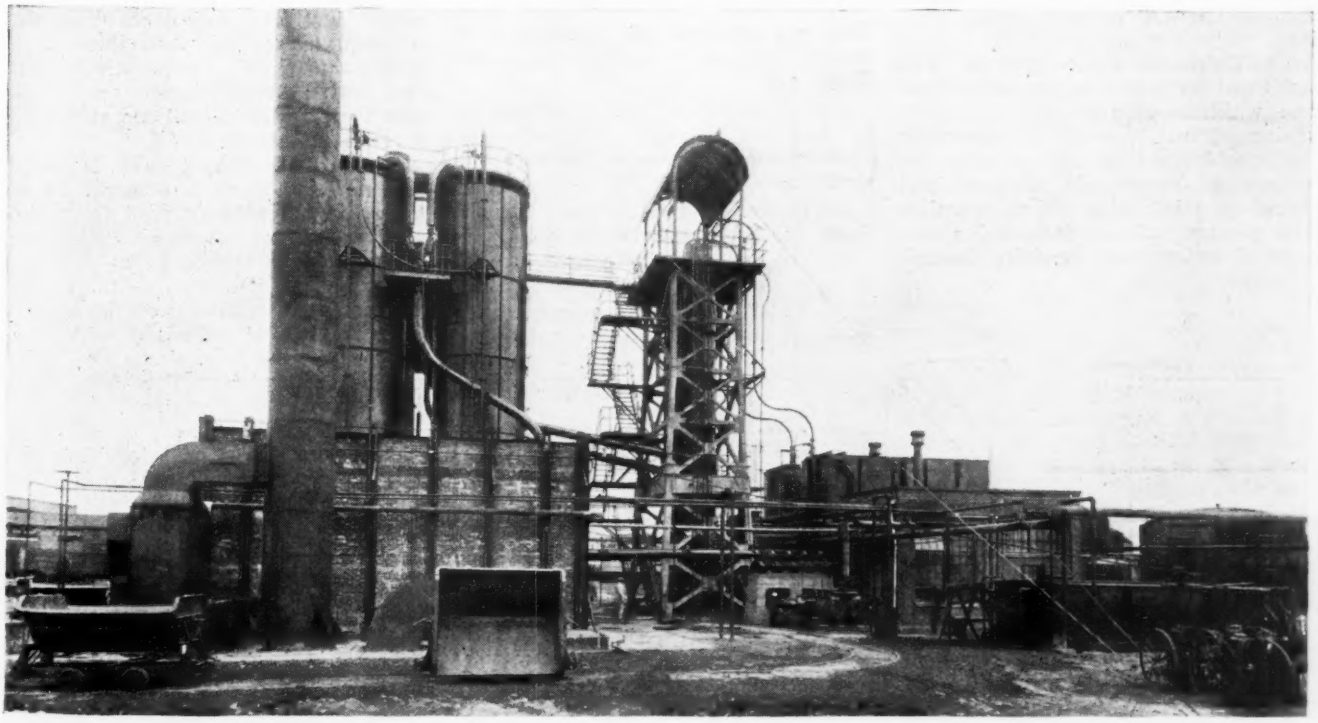


View of steam turbine driving gas recirculating fan on the Dubbs cracking units at the Paragon plant

The Dubbs units are running three days and shut down one day for cleaning, on the average, according to Superintendent Luton. The cracking units produce from the gas oil about 80 per cent pressure distillate, 10 per cent gas oil, or recycle stock and 10 per cent coke and fixed gas. The coke produced runs about 60 pounds to the barrel of charging stock.

The pumps used on the Dubbs units for forcing the hot reflux into the charging line, which is now standard Dubbs practice, are Dow remote valve pumps or surge pumps. One of these is shown in an accompanying photograph.

The raw pressure distillate is given the acid and soda and doctor treatment before rerunning. Then it is rerun in the three new shell stills



View of the Dubbs cracking plant at the Paragon refinery. This is the latest and most modern installation of the Dubbs process

which were recently put in by the Widdill Engineering Co. This rerunning yields about 58 per cent of finished gasoline based on the charging stock. This gasoline is given a wash with a 6-degree A.P.I. gravity caustic to remove hydrogen sulfide and is then ready for market.

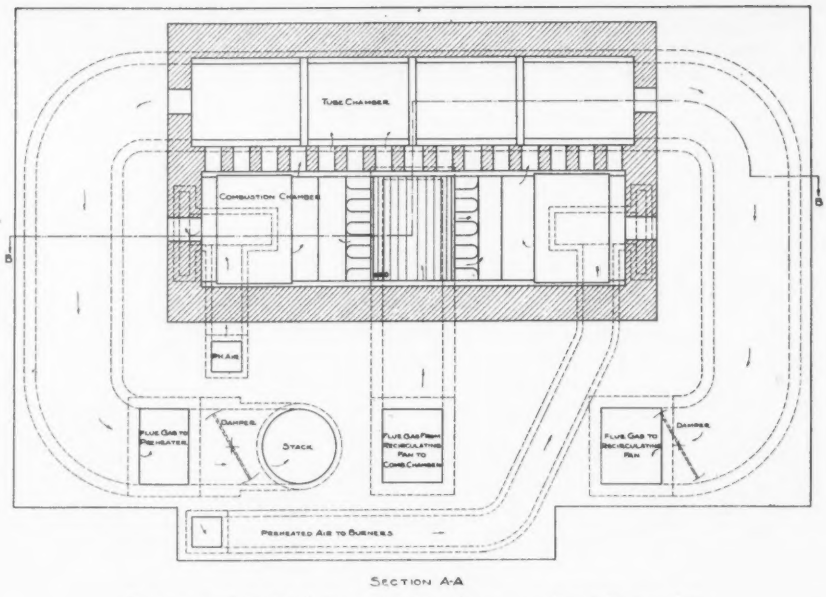
The reflux from the fractionating towers on the rerun stills also is sold as furnace distillate.

The fixed gas from the cracking stills is run through a scrubber where the hydrogen sulfide is removed by caustic soda. Thence it is bubbled through a naphtha absorber tower which extracts about three quarters of a gallon of gasoline per 1000 cubic feet of gas. The stripped gas passes to an improvised gasholder made of three old tanks set horizontally. This gasholder is merely for taking up the slack. The amount of gas produced in the plant is not so much above the requirements for fuel as to accumulate any great amount that would build up a high pressure. So the old tanks serve the purpose very well. The gas is burned under stills.

The boiler plant is rather old but is serving its purpose very well, especially as the pumps are motorized, that having been found the cheaper method, even though the refinery has no generating equipment and the current is bought from the local power company.

Steam, however, is used in the rerun stills and each strategic point in the plant is equipped with a standby steam pump in case the power fails. The pumps and motors in the pump house are set in approved style with the motors on one side of a longitudinal fire wall and the pumps on the other, the shafts passing through the wall in spark proof bearings.

The Dubbs stills are equipped with the Sturtevant gas recirculation system which is said to effect a great saving of fuel as well as prolonging the life of the tubes by reducing the amount of excess air admitted and therefore minimizing tube oxidation. The gas recirculation installation consists of underground conduits through which partly burned gases are sucked from one end of the tube chamber of the furnace and blown into the middle of the combustion chamber.



Plan view of Dubbs furnace showing flue gas recirculating system

This is accomplished by a combined suction and blower fan, made of high chromium steel which is designed to stand a temperature of around 1200 degrees Fahr., which is somewhat higher than is usually encountered in this particular installation. This fan is direct driven at high speed by a steam turbine and is mounted on a shaft running in water-cooled bearings. It is said these Dubbs units are operating on a fuel consumption of about 4 or 5 per cent based on charging stock.

Mr. Leroux is working on three projects with the hope that when they are realized the refinery will show a still more satisfactory profit. These are:

1—To market by water instead of by tank car the surplus gasoline the refinery makes over the needs of its own station.

2—To find a good market for the fixed gas from the Dubbs stills.

3—To find a satisfactory market for his coke.

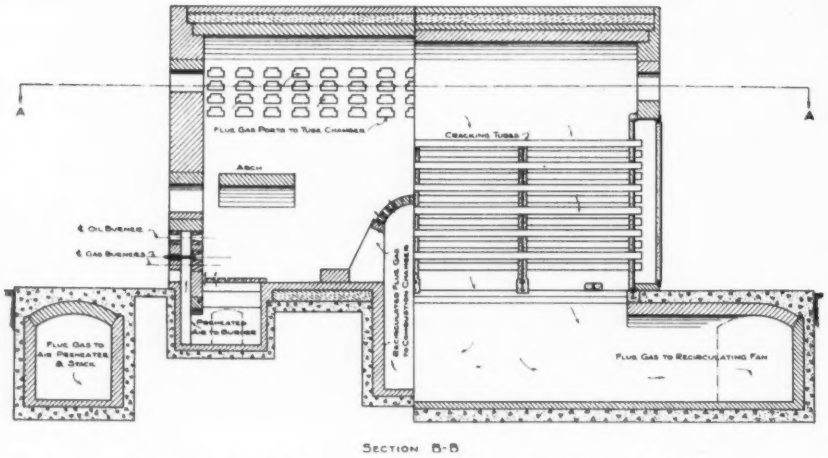
The refinery has deep water frontage on the Maumee river where it would be easy to load gasoline into barges. He says he may trade some of the company's 2000 or so tank cars for barges and market all his surplus by water either in Cleveland or Detroit, both of which cities can be reached at a very low freight rate by water.

The 25 per cent of the plant's output that he had to sell at wholesale last year either showed a very small profit or went at an actual loss, Mr. Leroux said.

To sell the fixed gas from the cracking stills seems not a very hopeful proposition in Toledo. There is no artificial gas plant there which might buy the petroleum gas for enriching water gas and there is a large amount of comparatively low heat value blast furnace gas available there for industrial use at around 5 cents a 1000 feet.

Some of the lump coke is being sold now but there is a large pile of breeze in the refinery yard for which a buyer has not yet been found. Some of the coke is burned in the refinery boiler house. However, as the boilers are equipped with automatic stokers the coke has to be mixed with coal, about two thirds coal to one third coke in order to burn it without burning out the stoker grates.

Mr. Leroux has made some study of the possibilities of briquetting the coke breeze and selling it for household use but the developments so far in the field of briquetting do not look so promising.



Elevation of Dubbs furnace showing flue gas recirculating system

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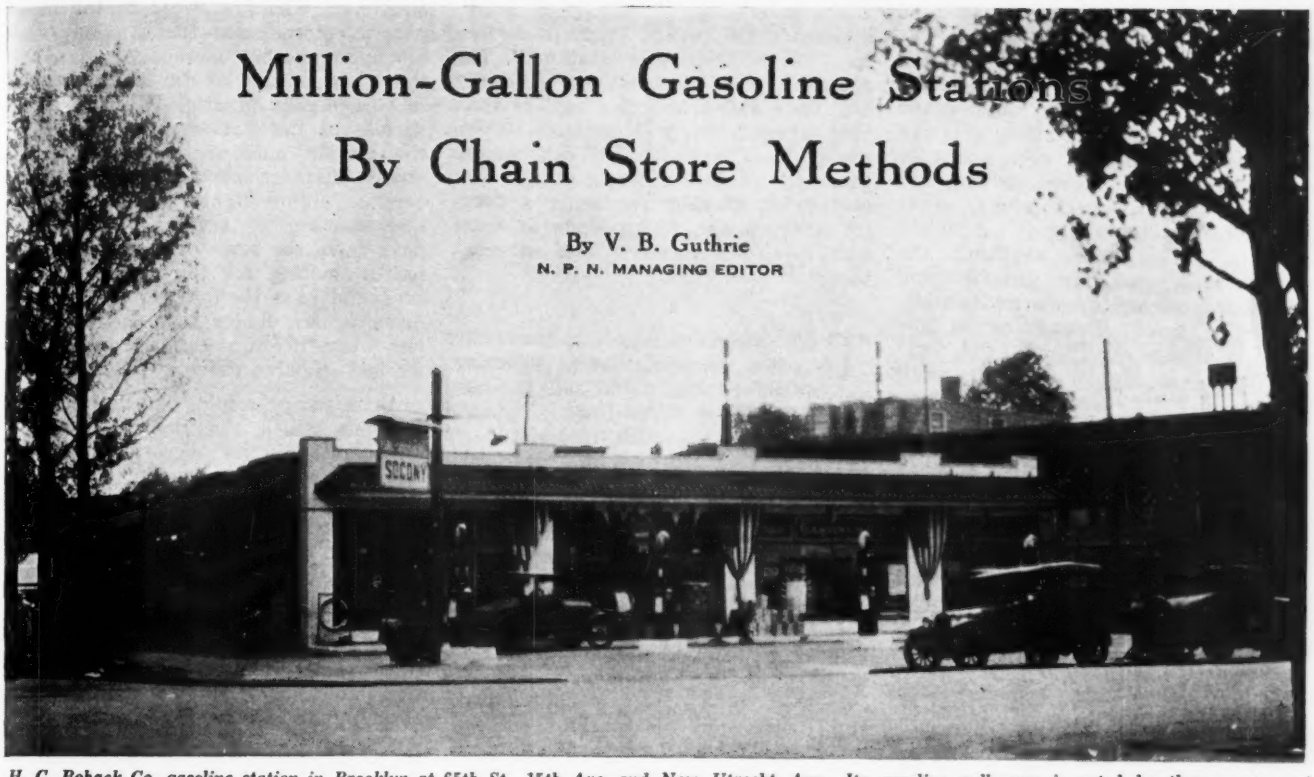
KANSAS CITY, Jan. 20.—Mrs. R. D. Rankin died suddenly at her home here on Jan. 16. Funeral services were held here Jan. 18. She is survived by Mr. Rankin who is in charge of the Kansas City office for Spencer Petroleum Co.; one son and one daughter.

Million-Gallon Gasoline Stations By Chain Store Methods

By V. B. Guthrie
N. P. N. MANAGING EDITOR



H. C. Bohack Co. gasoline station in Brooklyn at 65th St., 15th Ave. and New Utrecht Ave. Its gasoline gallonage is rated by the company at around 80,000 gallons a month. Note that the front of the station has as much window display space as a block of stores

NEW YORK, Jan. 21

MERCHANDISING principles that have made chain stores successful institutions in various retail lines have been applied to the operation of gasoline stations in Brooklyn by H. C. Bohack Co. and apparently with just as great success. This company is no novice when it comes to running chain stores. For 40 years its name has been familiar to Brooklynites over grocery stores and meat markets. It runs 425 of the former and 200 of the latter.

Five years ago it ventured into the gasoline station business, through the same channel many companies have come into oil marketing, the purchasing of considerable volume of gasoline and supplying it to its own motor vehicles. To extend that service to its customers was an easy step.

However, considerable progress has been made since that first step. While it now has only five stations, in 1927 its gasoline business totaled 5,000,000 gallons and lubricating oil 100,000 gallons, according to M. C. Rader, who is in charge of these stations as well as of sales in the grocery and meat stores. The company advertised that 1,000,000 car owners visited its stations in 1927.

One principle of the chain stores that has been adopted at the Bohack stations is making it easy for the public to buy, through not only displaying the items the station has for sale, but also the price. Where the size of the property has allowed the Bohack stations have from 12 to 18 pumps, easy of access, even though several cars may be in the station already. This provides for ease of mind on the part of both the motorist who draws up there and the attendant who is taking care of him. If the attendant can secure the customer's interest in something other than the five gallons or so of gasoline he drove in for, the sale can be carried forward without either thinking that some other motorist perhaps an impatient one, is waiting to draw up to that particular pump. Of course there are rush periods when the full pump capacity of the station is in use, but not for many hours of the day.

For another thing, the station buildings are all built with as much display space as has any retail store. The front of the building is all window display. This space is put to continual and intelligent use, too. The space is filled with merchandise of timely interest, when possible. When snow and ice come, for example, at least one window will be filled with skid chains. The first cold weather is quite likely to bring to the front a display of anti-freeze radiator solutions in cans. Before Christmas the window displays as much holiday atmosphere as any retail establishment.

IN THE station buildings there are display counters running along the back of the building and on the walls back of these there is shelf room for merchandise display. Along with every item, and more than 300 are on sale at the stations, the price is prominently set forth. For this purpose the management uses the same kind of metal figures that have come to be familiar to patrons of chain stores, perhaps two inches high, large enough to be easily read at a distance of several feet. In the same way every item on display in the windows has the price on it. A customer at the station never has to ask the price

"Feeders" Build Up Gasoline Sales

(List of accessories featured as bargains at H. C. Bohack Co. stations in Brooklyn.)

Tires and Tubes

Ten popular makes carried, in 30 sizes of tires. One make featured as made expressly for Bohack carrying special guarantees.

Winter Merchandise

Skid chains, cross links and sets of chain adjusters. Radiator anti-freeze solutions, radiator covers, robes and blankets, driving gloves.

General Necessities

Spark plugs, jacks, socket sets, tire pumps, windshield wipers, lamps, patches, tire repair outfits, flashlights.

Cleaning Equipment

Chamois, soaps, polishes, polishing mittens, touch-up paint, cheese cloth, sponges.

General

Flashlights, cushions, dry cells, radiator cap ornaments, tobacco.

of any article. He can see that if he can see the article itself.

In fact the price may interest the customer before he sees the particular item of merchandise, for, outside the station, displayed in a variety of ways are price schedules of accessories or tires carried there, gloves, driving and cleaning dusters, spark plugs, ornaments for radiator caps, windshield cleaners, jacks, most anything the station sells, including gasoline and lubricating oil and grease and alemiting. The price of gasoline at the pump is always on display, and, incidentally, it is always the full retail market, 18 cents as this is written.

A second principal feature of chain store merchandising which is being carried on at Bohack gasoline stations is the use of "feeders," sales at almost cost, of certain articles for the purpose of getting the public into the place, with the knowledge that a certain definite proportion of purchases of bargain items will be accompanied by purchases of other items on which the store makes its regular margin of profit.

Although the five Bohack stations handled $500,000 gross sales of automobile accessories last year, Mr. Rader explained that this large volume was mainly for the purpose of building up sales on oil products, which as before mentioned, in the case of gasoline at least, are always carried at the full retail market. Selling prices for accessories and tires are always "bargain" prices, 98 cents for a jack, 59 cents for automobile polish, $1.95 for an automatic windshield wiper and so on. They are lower than these items can be purchased at the great majority of garages and regular accessory stores. However, due to the volume of sales and the experience in buying of the Bohack organization, they still represent some kind of a profit to the station. Mr. Rader's policy is not to handle any item if it means a direct loss, although the profit on the "feeder" items may be shaved quite close.

THE Bohack stations do a big business on tires. Here the principle followed is also to move a volume at a small profit on each sale. A full line of tires is carried, and their prices are conspicuously posted. Tires are changed at the station and adjustments made on old tires.

"We consider handling tires good business for our stations because it is about the only item where we can get a record of the customer's name and address, date of purchase and so on," Mr. Rader said. "This gives us an opportunity to send our price sheets on accessories and oil and so on to such customers regularly and also to go after them for the sale of new tires at about the time they should be considering a new tire."

Mr. Rader is of the opinion it would be good business for oil marketing companies with gasoline stations to consider handling of accessories for the benefit of their dealers as well as their own stations. The company with stations can generally buy tires and accessories at less than the garage man or individual station owner has to pay. He can supply them to his dealer trade at his own cost price, thereby rendering a service to the dealer which tends to make him a steady gasoline and oil customer.

THE Bohack company follows only a few general rules in selecting automobile equipment to sell through its stations. It takes lines of standard makes with which motorists are familiar, keeping to items of practical use for the most part and avoiding novelties. Sales at stations are watched closely in ordering, so that the end of the winter season, for example, will not find the company with an excess lot of skid chains, or anti-freeze solution, that must be carried over until the coming of cold weather again. Equipment that takes time to install on a car is not handled. Mr. Rader says his stations will do sometimes from $7000 to $8000 gross sales a week, on an inventory of not over $1500 carried at the station.

One main drawback to handling anything like a complete line of accessories at gasoline stations has been the additional work entailed in checking inventories on a large number of items. The Bohack stations get around this by taking inventory only once a month and not burdening the station crews with the necessity of checking the inventory daily. Mr. Rader says the stations will run a very definite percentage of profit and he watches station reports on sales and, if there is any variance in the rate at which this profit runs he investigates at the station to find the reason. Where any indications of carelessness are found he puts it up to the station crew to correct it with the alternative of the entire crew getting out if it is not done. The company pays the station men enough so that positions there are looked upon as highly desirable, and Mr. Rader believes that, if there is one careless or even dishonest man in a station crew, the desire of the rest of the men to hold their positions goes a long way to either straighten up the offender, or make it so unpleasant for him he gets out.

The Bohack company issues price sheets from its stations on which prices are given on about everything sold at the station but gasoline and motor oil. Prices on tires and tubes are always carried and on many of the accessories the stations are pushing as "feeders" for the gasoline and oil business. These price sheets are about 15 by 20 inches, printed only on one side and folded so they can be easily passed out to a motorist who stops at the station. These price circulars are also sent through the mail to all customers who are listed in the company's records, and the company has hit upon another method of distribution that is new as far as is known in oil company practice. During slack periods at the stations, one or two of the station men are sent to nearby street intersections where traffic officers or signal lights direct stopping and starting of traffic. These men pass down the rows of cars which are halted waiting for the signal to proceed and pass the price sheets to the drivers. Mr. Rader says the company has very definite returns from this method of advertising.

A third principle of chain store methods which the Bohack company has planted in its operation of gasoline stations is to make the crews realize that they are primarily salesmen. They are at the station to push the sale of all goods the company carries. They are trained, before they go on duty at the station, at the company's own supply store where they are taught how to display and talk the merchandise sold at the stations and how to push a sale without offending the customer.

WHILE the men are paid a flat amount, and no definite commission on their sales, Mr. Rader adds to the pay of each station man who has had a good week as far as sales are concerned a few dollars extra. There is no definite arrangement on this, but the man who believes he has exceeded his normal efforts can look forward to this additional amount in his pay with reasonable certainty.

In each station there is a small blackboard on the wall and this bulletin board each day carries to the station crews a message from Mr. Rader as head of their sales work. The message may relate to some seasonal accessory that can be pushed because of certain weather conditions that day. It may be that sales of motor oil are lagging generally, or some other principal item of merchandise. If so Mr. Rader calls all the stations early in the morning, gives general directions for the day to the station manager and this message is put on the bulletin board. Mr. Rader says it has a desirable effect in coordinating sales activities at the five stations.

All five of the Bohack stations handle cigars and cigarettes, in line with the general policy of the company in carrying merchandise that appeals to men. The men found that customers at the stations waiting for an oil change or to have a new tire put on, or even while stopping for gasoline, found themselves out of tobacco and inquired if the station carried it. Cigars and cigarettes are carried at cut prices as compared with the corner drug store or smoke shop, and the result has been large enough sales that the company carries several brands of cigars and cigarettes.

Refiners Paid Patent Club Members 30 Million Dollars in 11 Years

By Paul Truesdell

N. P. N. STAFF WRITER

CLEVELAND, Jan. 21

MORE than 30 million dollars was paid by refiners to members of the Patent Club in royalties on cracking processes in the 11 years from 1914 to 1924 inclusive. Of this amount, $26,868,407.88 was collected by the Standard Oil Co. of Indiana. It included sums paid direct by licensees of the Burton process and sums paid by The Texas Co. and the Standard of New Jersey under the Patent Club arrangement.

The Texas Co. collected $2,858,148.67 for use of the Holmes-Manley process; the Standard of New Jersey $519,861.49 for use of the Tube and Tank process and the Gasoline Products Corp. $528,271.28 for use of the Cross process.

The royalty collections of the Standard of Indiana were spread over the entire 11-year period mentioned; The Texas Co.'s royalty revenue covered the period only from 1921 to 1924 inclusive; the Standard of New Jersey, 1922 to 1924 inclusive and the Gasoline Products Corp., 1921-1924 inclusive.

All this is brought out in the report of Special Master Charles Martindale in United States of America versus Standard of Indiana and others, the government's suit against the Patent Club. This phase of the question is in the part of the report dealing with the utility of the defendants' patents. The position taken by the master is that without the development of the processes covered by the patents at issue in the case, the need of the American motorist for gasoline could not have been met.

IN EFFECT, the argument of the special master seems to be:

"If the patents were not important and useful why would the companies owning them been able to collect more than 30 million dollars for their use?"

How much has been paid by refiners to Patent Club members in royalties in the four years since the last date covered in the report there is no way of knowing. It seems likely, though, that the amount has increased each year with the possible exception of 1927 when a good deal of cracking equipment was shut down.

Other phases of the special master's report have been discussed in immediately preceding issues of NATIONAL PETROLEUM NEWS. The master's consideration and conclusions of the prior art as it relates to tube cracking and his ruling that the Schuchow and Gavrilow Russian patent did not anticipate later tube cracking patents, was published on page 51 of the Jan. 18 issue.

In discussing the utility of the patents in suit, the report says:

"The processes of the primary defendants respectively are the embodiment of the group of patents held by them, respectively, with the exception of a very small number.

"It is very certain that no one could practice the commercial process of either of the primary defendants without running foul of the patents on indispensable features embodied in it.

"IT IS quite true that there is a recognizable distinction between the usefulness of the plant structures of the defendants respectively, considered as mechanical units, and the utility of separate patented features embodied therein and likewise a distinction between the usefulness of the commercial process included in each of the respective operations of the primary defendants and the utility of the several and respective inventions described in their process patents.

"While it is abundantly shown that the respective structures of the primary defendants as mechanical units and the processes which are effectuated by these structures are of very great utility in the art, it does not necessarily follow that such utility is due in equal degree to each of the inventions embodied therein.

"Nevertheless, where it is shown, as it is in this case, that the mechanical units could not exist without the embodiment therein of the patented mechanical features and that the processes effectuated and carried out by these structures could not be carried on without involving claims of the process patents of the several defendants there is necessarily imported to each of the inventions so embodied in the structure or involved in the process, a utility of more or less relative importance.

"Therefore the utility of these commercial processes includes and demonstrates the utility of the patents of the primary defendants respectively pertaining thereto.

"In Bureau of Mines circular (submitted in evidence) it is said:

" 'According to the best information available, about 26 per cent of the gasoline output of the refineries for 1925 was produced from heavier oils by cracking.

" 'This represents a production of approximately 2,824,000,000 gallons of gasoline by the use of cracking processes as compared to 400,000,000 gallons in 1918 and 1,000,000,000 for the 5-year period preceding 1918. This large production of cracked gasoline has been an extremely important factor in the providing of an adequate supply of motor fuel as it has greatly increased the amount of gasoline available without a corresponding increase in the production of crude oil. On the basis of the estimated yield of gasoline by straight distillation (23.4 per cent) in 1925, it would have required approximately 287,000,000 barrels additional of crude oil to furnish the gasoline made by cracking processes.'

"The Burton process of the Standard Oil Co. of Indiana went into operation in the latter part of 1912 and was the first process for producing cracked gasoline in large quantities.

"In producing this successful commercial process the company had expended, in research and experimental work and in the erection of the first battery of pressure stills a sum largely in excess of $1,000,000. It doubled the amount of gasoline which could be produced from a given amount of crude petroleum.

"THE product first produced was of bad color and offensive odor and was sold as 'motor spirit'. Later this product was refined and sold as ordinary gasoline.

"From 1912 to 1920 the Standard Oil Co. of Indiana and its licensees were the only sources in the United States commercially making cracked gasoline and during that period the demand for gasoline increased 1000 per cent while the supply of crude petroleum increased only 200 per cent.

"In 1914 the production of cracked gasoline was 2,028,000 barrels.

"In 1921 the production of cracked gasoline was 21,253,000 barrels.

As the Burton process was the only commercial process producing cracked gasoline from 1914 to 1921, this enormous increase must be

largely attributable to the Burton process.

"It is shown by Exhibit No. 2 that the Standard Oil Co. of Indiana has received from its licensees, including royalties received from The Texas Co. and Standard Oil Co. of New Jersey, the following amounts:

1914	$ 72,563.83
1915	332,048.87
1916	1,786,982.62
1917	2,418,627.17
1918	3,154,202.54
1919	3,850,081.66
1920	3,441,925.76
1921	1,990,631.10
1922	4,353,778.07
1923	3,051,857.85
1924	2,414,708.41

"The Texas Co. began the first installation of the Holmes-Manley batteries in July of 1918 and they were put into commercial operation at Port Arthur in February, 1920: The first appropriation made by The Texas Co. at the time of the beginning of the work was $570,000 and the next appropriation for completing the first installation in August of 1919 was $2,493,000.

"From that time to the beginning of 1926 The Texas Co. had spent over $14,000,000 for installing plants operating the Holmes-Manley process, exclusive of steam plants, power plants, water supply and general tankage used in connection with the cracking operation.

"It now has plants at West Tulsa, Lockport, Ill., and Casper, Wyo. The daily rated gasoline production of all these plants is 1,092,000 gallons of cracked gasoline.

"It has received for the use of its patents from its licensees the following royalties:

1921	$426,236.39
1922	943,641.14
1923	601,379.36
1924	986,891.78

THE Holmes-Manley continuous cracking process is almost universally agreed to be the highest embodiment of the art of bulk pressure distillation, whereas the Burton and Clark processes enabled the operator to handle 20,000 gallons of cracking stock in a cycle of two days with the result of obtaining 30 to 35 per cent of gasoline, the Holmes-Manley process puts through approximately 70,000 gallons a day, or 7 times as much as the Burton-Clark process and makes around 40 per cent of gasoline and runs for a period 15 to 30 days and frequently longer before having to be shut down because of coking.

"The Holmes-Manley commercial cracking still embodies in its structure and operation the inventions of a number of the patents of the defendants. A number of its features are disclosed in the various patents to Adams; others are in the patents issued to Manley, to Holmes, to Behimer and to Holmes and Manley jointly. It embodies also some of the claims of Clark, Humphreys, Burton (No. 1,160,689) Lewis & Cooke, Burton & Clark (owned by the Standard of Indiana) and some of the claims of Ellis (owned by the New Jersey company).

THE Standard of New Jersey began operating pressure stills under license to use the inventions of the Burton patents of Standard of Indiana in 1915. It began operating its Tube and Tank stills in 1921. From five licensees of its Tube and Tank process the New Jersey company received the following amount:

In 1922	$ 1,462.60
In 1923	161,641.80
In 1924	356,757.09

"Using its Tube and Tank process, in 1924, it produced 2,615,932 gallons of cracked gasoline.

"The Tube and Tank process of the Standard Oil Co. of New Jersey was worked out by Mr. Frank A. Howard, in charge of research work of that company, and Dr. Loomis. It was started by a desire to devise a process of handling the viscous type of Mexican crude oil known as Panuco crude. It was while working on these developments that Howard became impressed with the advisability and necessity of the company acquiring the Hall and the Ellis patents.

"Many of the cracking units involving this Tube and Tank process are operated in foreign countries by subsidiaries of the Standard Oil Co. of New Jersey.

"The utility of the Tube and Tank commercial process of the New Jersey company is shown and as said above, imports the utility of the patented invention embodied in its construction. The importance of the industrial operation of the commercial process lends great importance to the patents covering the industrial embodiment.

The Gasoline Products Co. is not engaged in refining. Its business is limited to the development of a cracking the Cross patents therefor, issuing licenses thereunder to refiners for operation under that process.

"From all its licensees from 1921 to 1924 it had received $528,271.28.

"THE doctors, Walter and Roy Cross in developing the Cross process of the Gasoline Products Co. took a distinct step forward in the gasoline refining art and they have gone further than any other of the inventors in the utilization of very high temperatures and very high pressures, which is in line with the general trend of the art of destructive distillation. Their patents are a contribution of great importance to the patent art relating to the refining industry.

From all evidence the master finds that the inventions of the patents owned by each of the primary defendants respectively are of great utility; that the respective groups of patents owned by the several primary defendants relate to the same art and general subject matter and the domain covered by each group is so adjacent to the domain covered by each of the other groups as that wasteful litigation was likely to be provoked between them and their development of competing refining processes hindered and perhaps frustrated to the detriment of the public interest; that whether and in which instances a patent or patents of one primary defendant was infringed by either or any of the other primary defendants in the absence of a license it is not now necessary to decide.

"The petitioner has failed to prove the allegations of its petition.

"The special master finds that with the exception of not more than 5 or 6, the patents owned by the primary defendants are not for 'minor improvements' in processes and operations for the manufacture of cracked gasoline but are for substantial, valuable and highly useful improvements which have made possible the manufacture of cracked gasoline in commercial quantities, have increased the yield of gasoline per barrel of crude many times over and have enabled the supply of gasoline to meet the ever increasing demand.

"THAT the processes employed by the defendants for cracking gasoline by the application of superatmospheric pressure and high temperatures described in the letters patent of the primary defendants are not, in all substantial respects, the same processes known and employed long prior to the application for or issuance of any of their said patents but were for new and useful and patentable inventions the utility of which has been shown by the petitioner itself.

"The special master finds that the procuring and treating of said patents as valid by the defendants is not a device to lend color of legality to any combination, conspiracy or monopoly but that said patents were procured in the regular and lawful manner and were acquired by the defendants in good faith for the laudable purpose of producing a larger proportion of gasoline from a given amount of crude petroleum and for supplying the critical demand in the United States for more gasoline than could be produced by the straight distillation method."

Pierce Oil Cagers Win

AKRON, O.,—The basketball team of the C. A. Pierce Oil Co. is winning against teams of other Ohio oil companies and business organizations. It recently defeated the team of the Peerless Oil Co. at Elyria. Its schedule among other teams includes the Knox Oil Co., Mt. Vernon, O.; Lions' club, Lorain, O., and Union Trust Co., Cleveland.

Ohio Marketers Told U. S. Government May Stop Lease and License Pacts

CLEVELAND, Jan. 23

PREDICTION that the federal government would stop use of the lease and license contract of large oil distributors in binding dealers to their products exclusively, was made before the Western Reserve Petroleum Club Jan. 20 by Frank W. Lovejoy, sales manager, the Vacuum Oil Co., New York. Mr. Lovejoy said that many of the lease and license contracts were instruments in restraint of trade.

Mr. Lovejoy is just completing a speaking trip through Ohio, addressing the sectional petroleum clubs with E. F. Hallock, chief engineer of the Vacuum's automotive department.

Mr. Lovejoy has been pleading with the Independent marketers to maintain their independence by keeping away from any strangling alliances with large distributors. He said, as he has told thousands of marketers in the last few years, that by building their business on a good reputation with quality merchandise and quality service that they could not be forced from business although the hounds of competition were baying at their heels.

Mr. Lovejoy mentioned names of no companies that are using the lease but after his talk on "The Elements of Merchandising" he did say that some of the recent contracts were less vicious than earlier lease and license contracts which permitted the licensing companies virtually to seize the business of the licensee if quotas were not maintained, this seizure, of course, if the courts should uphold the contract if the licensee began litigation over it.

THERE are 250,000 oil and gasoline outlets in the United States, or enough to service 40,000,000 automobiles, Mr. Lovejoy said. This would be an average of 80 to an outlet. There are only 23,000,000 cars and trucks.

"It is too many outlets that is causing ned in the oil marketing business today," he continued, "there also is too much merchandise and too little merchandising."

He urged the marketers to build their business on reputation. If it is built on reputation, no fire or cyclone can sweep it away.

"Get down to straight merchandising and sell quality," he exhorted. There are three general groups of buyers, he said it had been determined. One buys on quality. The second would buy on quality but thinks it can't afford to. The third follows a leader.

"Sell on the economy of quality," he pleaded. "Then you will get the large second group, pull in the first group automaticaly and get a large slice of the third group."

THE public is not concerned a great deal about price, Mr. Lovejoy declared, illustrating this assertion with an anecdote the truthfulness of which was vouched for by a salesman for a large company that competes with Mr. Lovejoy. On state highway No. 18 in Ohio was a filling station that sold gasoline at 17 cents a gallon. It had a large sign with the figure 17 on each side set in front of the station. A high wind blew down the sign but near that sign was a highway marker bearing the numeral 18.

After the 17 cent sign had been blown down the owner of the station was puzzled because customers that came from one direction paid him 18 cents a gallon while those that came from another asked the price of gasoline. Motorists mistook the highway marker for a price sign which have become common in Ohio while those coming from the other direction were not greatly concerned about the price, he said.

He said that on this trip about Ohio he and Mr. Hallock spent one morning at a cut price station after they had convinced the owner that he could get a higher price. They had the pump men tell each customer, "Gasoline is 19 cents today." The station did a fine business that morning and the owner got 2 cents a gallon more for his gasoline than he previously had been getting. The buying public, as a whole, did not question the fairness of that 19-cent price.

"BUY for the public; don't try to sell it," Mr. Lovejoy urged, repeating an injunction he has been stressing to the Independent marketers for several years.

The oil industry is a secondary industry, Mr. Hallock said. What it must do depends on what is done in the automotive industry. The automotive industry is moving fast, he declared in prefacing an illustration of what effect balloon tires had had on the oil industry.

Balloon tires, he said, took roads that were suitable for travel at 35 miles an hour with old high pressure tires, and made them suitable for 45 miles an hour. This changed the type of oil required because temperatures of crankcase oil rose from 120 to 130 degrees Fahr. to more than 200 degrees and in one car operated in Texas to 250 degrees. Balloon tires made necessary the redesigning of steering gear, the balancing of crankshafts, the lightening of reciprocating parts, all of which altered the automobile lubrication problem.

Specifications of motor oils mean a lot, Mr. Hallock said, but they fall short of telling the whole story about the oil. Oils may have the same specifications but may not perform alike. This was because the components of the oil may vary considerably yet the blends may show the same physical characteristics. He compared the components of motor oils to the notes in a measure of music. Written down the notes look alike but when played on a piano, violin or wind instruments they sound greatly different. Performance is the only satisfactory criterion for a motor oil, he asserted.

DISCUSSING the functions of a motor oil—keeping the moving parts separated—Mr. Hallock said that castor oil in an engine made a splendid absorbed film that permitted easy starting of the motor after it has been idle for some time but that in circulation corrosive compounds were formed by the castor which made it unsuitable for general use. He said weak fatty acids in the castor oil etched the shaft and formed a soap that stuck to the shaft or bearing. But the soap forming property was disastrous when an oil possessing it was used in a car for a long period without rebuilding the engine.

Mr. Hallock warned the marketers that they were selling satisfactory service over a period and not just oil. He explained the policy of the General Motors Corp. in putting in flat charge lubrication service was to keep their cars out of the service station. General Motors dealers are not interested in selling oil and lubrication service but they are working to minimize repairs and thus maintain a good reputation for the cars with the motoring public, he said, although they do hope to keep in contact with their customers.

"You oil men must give better lubrication service to the consumer," he again warned.

Texas and California Petroleum Complete Merger Preliminaries

CLEVELAND, Jan. 21

THE Texas Corp. and the California Petroleum Corp. will be consolidated providing 51 per cent of the stock of the former is deposited for exchange for The Texas Corp. stock. Announcement that merger negotiations had proceeded this far were made Jan. 19. The basis of exchange is two shares of California Petroleum stock for one share of The Texas Corp. stock. Place of exchange and time limit will be announced later.

The official announcement given out at the offices of The Texas Corp. follows:

"The Texas Corp. and Mr. Jacques Vinmont, on behalf of himself and other stockholders of the California Petroleum Corp., have agreed to exchange stock of the Texas Corp. for stock of the California Petroleum Corp. on the basis of one share of Texas Corp. for two shares of California Petroleum Corp., on condition that at least 51 per cent of the stock of the California Petroleum Corp. is deposited for exchange.

"The offer is, however, open to all stockholders of the California Petroleum Corp. The date within which the stock of the California Petroleum Corp. may be deposited for exchange and the depositaries will be announced as soon as the details of the contract have been reduced to writing."

Mr. Vinmont is president of California Petroleum Corp.

The California Petroleum Corp. has outstanding $49,505,175 of $25 a share par value stock and The Texas Corp. $181,600,000 of $25 par value stock. Market value of the combined stock is approximately $450.000.000.

Consolidation of the two corporations will bring into one organization properties valued at close to $550,000,000. Details of the property of the two corporations were published on page 18 of the Jan. 11, 1928, NATIONAL PETROLEUM NEWS with news that negotiations for the merger were under way.

The Texas Corp. is solely a holding corporation, chartered in Delaware, with $250,000,000 capital stock authorized. It took over the entire assets of The Texas Co. of Texas. A new operating corporation, styled The Texas Co. of Delaware, was chartered in Delaware Jan. 24, 1927, with $10,000 capital which later was increased to $150,000,000 capital. The Texas Co. of Texas was dissolved.

This rearrangement of the corporate structure of the Texas enterprise was made necessary to meet modern business conditions. The archaic corporation laws of Texas prevented The Texas Co. from owning stock in more than one subsidiary in any one state or foreign country at a time. This restriction prevented the flexibility necessary to conduct business along modern lines, especially in the oil industry where it has been found to be more economical and advantageous to have separate operating companies for different divisions of the industry.

The balance sheets of the two corporations of Dec. 31, 1926, are the latest available. The consolidated balance sheet of The Texas Co. and subsidiaries of the aforementioned date follow:

ASSETS

Lands and leases	$ 76,130,315
Pipe lines, tank farms	51,865,199
Refineries, terminals	76,531,586
Railroad equipment	5,962,779
Marine equipment	28,470,104
Marketing facilities	47,798,095
Miscellaneous	2,150,456
Total fixed assets	$288,908,534
Corporate securities	1,090,393
Cash	13,433,789
Accounts receivable	19,608,223
Notes receivable	4,314,869
Crude, refined oils	95,919,530
Storehouse supplies	6,303,177
Deferred charges	2,808,201
Total	$432,386,716

LIABILITIES

Capital stock	$164,450,000
Surplus	128,362,542
Depreciation reserve	108,259,082
Amortization of facilities	608,055
Deferred purchase obligations	1,859,135
Accounts payable	17,293,851
Notes payable	6,757,605
Estimated federal taxes	4,796,446
Total	$432,386,716

Balance sheet of the Texas Corp., the holding company, of the same date follows:

ASSETS

Shares in Texas Co.	$272,197,213
Cash	4,582,815
Deferred charges	279,231
Total	$277,059,259

LIABILITIES

Capital stock issued	$153,021,975
Surplus	119,491,404
Dividend payable	4,504,697
Accounts payable	41,183
Total	$277,059,259

Balance sheet of California Petroleum and subsidiary companies follows:

ASSETS

Real estate	$ 283,011
Oil lands, leases	46,618,656
Oil wells	29,804,422
Transportation, storage system	6,935,182
Absorption plants	5,320,659
Refineries	5,113,024
Marketing equipment	2,194,275
Marine equipment	3,818,030
Miscellaneous	457,269
Total property	$100,544,519
Depletion reserve	9,522,445
Depreciation reserve	17,297,556
Net property	$ 73,724,518
Investments	482,475
Sinking fund	556,872
Cash	8,035,247
Accounts receivable	3,321,788
Notes receivable	318,014
Crude, refined oils	7,856,686
Storehouse supplies	1,986,155
Deferred charges	2,616,154
Total	$ 98,897,910

LIABILITIES

Common stock outstanding	$ 49,498,575
Employes stock unissued	179,000
Minority interest in subsids.	733,919
Capital surplus	251,614
Funded debt	18,452,900
Purchase money obligations	2,370,418
Accounts payable	3,293,094
Notes payable	170,000
Reserve for federal taxes	1,605,045
Preferred stk. Called	74,080
Surplus	22,269,264
Total	$ 98,897,910

Staebler Station Operator Captures Bandit

ANN ARBOR, Mich., Jan. 20.—Three members of a Detroit gang that has been holding up service stations here and at Flint, Mich., were captured when one bandit attempted to hold up a station of the Staebler Oil Co. here.

A bandit entered the Staebler station at Main and Depot sts. shortly after opening on Jan. 11, covering Ernest Bailey, the attendant, with a revolver. Mr. Bailey reached for his pocket as though surrendering the money but pulled out his gun, and grabbed the bandit's revolver. In a hand-to-hand battle that followed Mr. Bailey struck the bandit over the head with the crank of a gasoline pump, and held him until police arrived.

Three hours after the attempted hold-up the bandit was sentenced to 18 years in the penitentiary. He was identified as the man holding up another Ann Arbor and a Ypsilanti station recently. Two other men were taken into custody, one of them admitting of 15 to 20 station hold ups recently in Flint.

B. L. Majewski Elected Vice-President

CHICAGO, Jan. 21.—B. L. Majewski has been elected vice president and director of Shaffer Oil & Refining Co. Mr. Majewski has been in charge of the marketing activities of Shaffer Oil & Refining Co. in this territory for nearly five years. It is one of his proud boasts that he started in with the company as a tank wagon driver in the southern suburban district of Chicago.

One of the weekly meetings of the Chicago Oil Men's club this month was given over to the celebration of Mr. Majewski's birthday, but it was not announced on that occasion that Barney was about to become a vice president and director of the company.

At the same time of Mr. Majewski's promotion, John J. O'Brien, president of the company, also announced that Vice President W. E. Moody had been made a director.

Standard Oil Company (Kentucky) *Uses Wheaton Faucets*

Wheaton Type A Tank Truck Faucet, with which truck shown above is equipped

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BACK in the winter of 1912-13 the Standard Oil Company (Kentucky) bought one sample Wheaton Type A Tank Faucet. For months they tested it. Then they placed their first order. That was in the days of horse-drawn tanks. From that time till this, they have constantly used Wheaton Type A Tank Faucets—made exactly like that first sample, put through test more than a decade and a half ago. And, no doubt, many of the faucets in that initial purchase have been removed from the old horse-drawn tanks and are still in service on the modern motor equipment like the truck shown above.

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Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations Week Ended January 20 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended Jan. 20	Total Week Ended Dec. 23
Plants Reporting	12	28	27	12	79	79
Crude Capacity (bbls.)	92,000	157,200	104,500	54,900	408,600	408,600
Cracking Capacity	30,700	52,600	16,200	22,700	122,200	122,200
Da. Av. Crude Runs	46,710 — 7.2	103,786 + 8.0	58,298 + 2.7	37,532 + 4.8	246,326 + 3.1	258,529
Da. Av. Other Oils	7,455 + 29.6	638 + 30.2	6,461 + 26.8	1,226 + 87.5	15,780 + 31.6	16,627
GASOLINE—Gallons						
Stocks, Jan. 13	11,450,000	44,997,000	18,368,000	3,288,000	78,103,000	71,749,000
Prod. 1-13 to 1-20	7,583,000 + 2.9	15,690,000 + 9.1	6,919,000 + 2.6	3,632,000 + 11.0	33,824,000 + 6.5	33,339,000
Ship. 1-13 to 1-20	7,482,000 — 12.0	13,800,000 — 4.3	7,547,000 + 1.4	3,836,000 + 17.1	32,665,000 — 2.9	28,156,000
Stocks, Jan. 20	11,551,000 + 0.9	46,887,000 + 4.2	17,740,000 — 3.4	3,084,000 — 6.2	79,262,000 + 1.5	76,932,000
Ratio Sales to Prod.	98.7%	88.0%	109.1%	105.6%	96.6%	84.5%
KEROSENE—Gallons						
Stocks, Jan. 13	3,242,000	7,508,000	2,155,000	657,000	13,562,000	14,372,000
Prod. 1-13 to 1-20	1,528,000 — 4.4	2,527,000 + 13.6	1,227,000 — 12.5	888,000 + 21.5	6,170,000 + 3.6	6,473,000
Ship. 1-13 to 1-20	1,201,000 — 40.7	2,459,000 + 10.1	1,369,000 — 6.3	609,000 — 18.1	5,638,000 — 12.8	7,104,000
Stocks, Jan. 20	3,569,000 + 10.1	7,576,000 + 0.9	2,013,000 — 6.6	936,000 + 42.5	14,094,000 + 3.9	13,741,000
Ratio Sales to Prod.	78.6%	97.3%	111.6%	68.6%	91.4%	109.7%
STOVE DISTILLATE—Gallons						
Stocks, Jan. 13	1,673,000	3,958,000	998,000	61,000	6,690,000	10,930,000
Prod. 1-13 to 1-20	125,000 — 55.7	665,000 — 26.3	265,000 + 26.2	58,000 + 93.3	1,113,000 — 21.8	1,190,000
Ship. 1-13 to 1-20	558,000 — 28.6	925,000 — 37.3	311,000 + 38.2	58,000 + 20.8	1,852,000 — 26.8	2,458,000
Stocks, Jan. 20	1,240,000 — 25.9	3,698,000 — 6.6	952,000 — 4.6	61,000	5,951,000 — 11.0	9,662,000
Ratio Sales to Prod.	446.4%	139.1%	117.4%	100.0%	166.4%	206.6%
GAS OIL—Gallons						
Stocks, Jan. 13	7,396,000	36,029,000	14,192,000	6,081,000	63,698,000	69,792,000
Prod. 1-13 to 1-20	1,129,000 + 0.4	2,119,000 + 1.9	948,000 + 0.9	1,392,000 — 17.1	5,588,000 — 4.1	6,248,000
Ship. 1-13 to 1-20	2,395,000 + 76.5	2,723,000 + 12.0	719,000 — 2.3	1,645,000 — 24.2	7,482,000 + 11.8	7,916,000
Stocks, Jan. 20	6,130,000 — 17.1	35,425,000 — 1.7	14,421,000 + 1.6	5,828,000 — 4.2	61,804,000 — 3.0	68,124,000
Ratio Sales to Prod.	212.1%	128.5%	75.8%	118.2%	133.9%	126.7%
FUEL OIL—Gallons						
Stocks, Jan. 13	12,405,000	31,128,000	39,154,000	11,087,000	93,774,000	104,154,000
Prod. 1-13 to 1-20	5,562,000 + 9.5	6,946,000 + 25.8	8,119,000 + 5.2	5,302,000 + 8.8	25,929,000 + 11.8	27,766,000
Ship. 1-13 to 1-20	5,662,000 — 13.3	7,587,000 — 2.0	8,401,000 + 1.1	5,428,000 — 0.7	27,078,000 — 3.4	32,545,000
Stocks, Jan. 20	12,305,000 — 0.8	30,487,000 — 2.1	38,872,000 — 0.7	10,961,000 — 1.1	92,625,000 — 1.2	99,375,000
Ratio Sales to Prod.	101.8%	109.2%	103.5%	102.4%	104.4%	117.2%

Gasoline Produced by Various Methods, Week Ended January 20

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	4,404,000	58.1	12,256,000	78.1	5,556,000	80.3	1,485,000	40.9	23,701,000	70.1
Cracked	2,668,000	35.2	2,440,000	15.6	1,104,000	16.0	1,480,000	40.7	7,692,000	22.7
Natural	511,000	6.7	994,000	6.3	259,000	3.7	667,000	18.4	2,431,000	7.2
Total	7,583,000		15,690,000		6,919,000		3,632,000		33,824,000	

+ or — columns are % change over previous week.

Stocks of Heavy Oil Reduced; Gasoline Increased

Staff Special—By Telegraph
TULSA, Jan. 24

STOCKS of all heavy oils were reduced at 79 refineries in the Mid-Continent field during the week ended Jan. 20 according to reports gathered by NATIONAL PETROLEUM NEWS. Small increases were made in stocks of gasoline and kerosene for the first time this year. In spite of the increases, stocks of these commodities were lower on Jan. 20 than at the close of 1927.

The increases in light oil stocks resulted from larger crude runs at reporting plants and a reduction in demand as indicated by shipments. Although there were decreases in demand for stove distillate and fuel oil the level of shipments during the week was still well above production.

With the exception of Kansas all

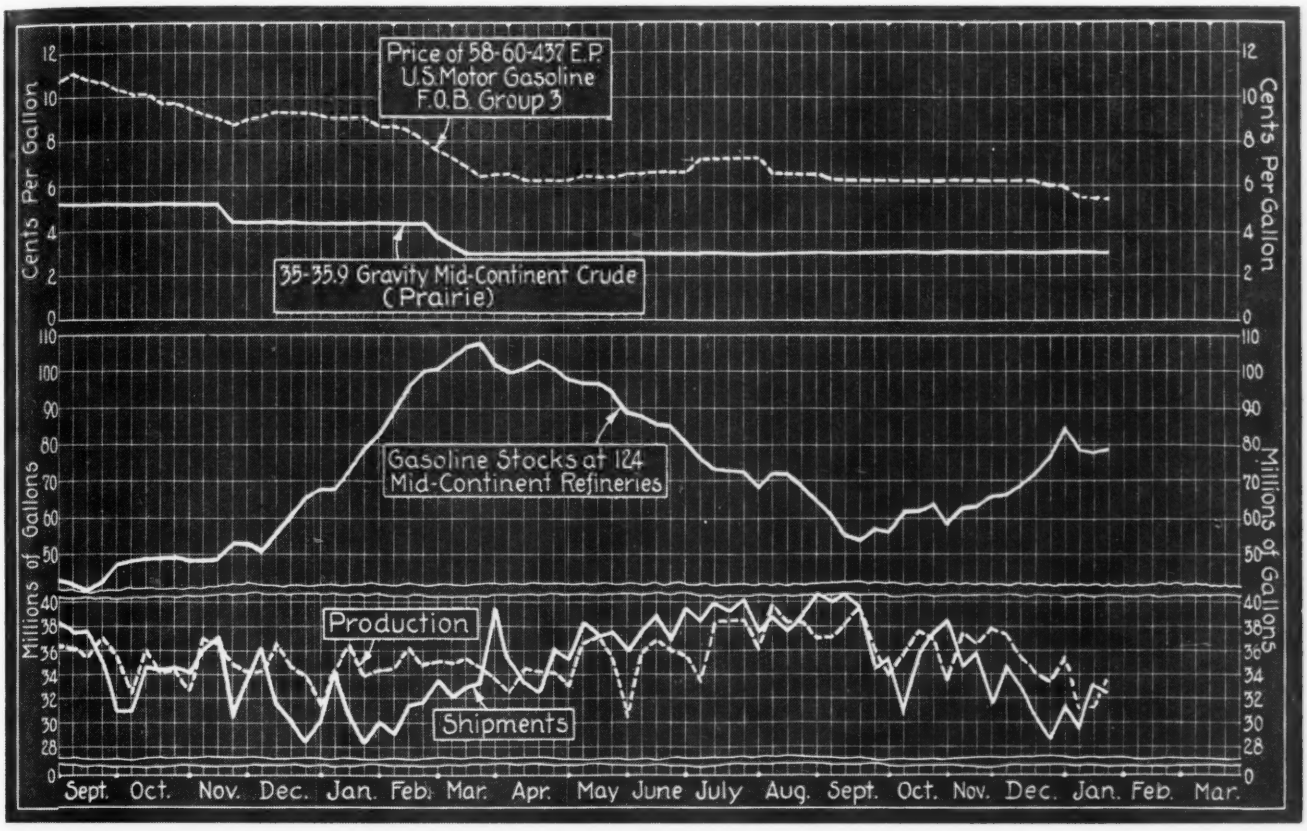
Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Jan. 20. Change in stocks figured from Dec. 23.

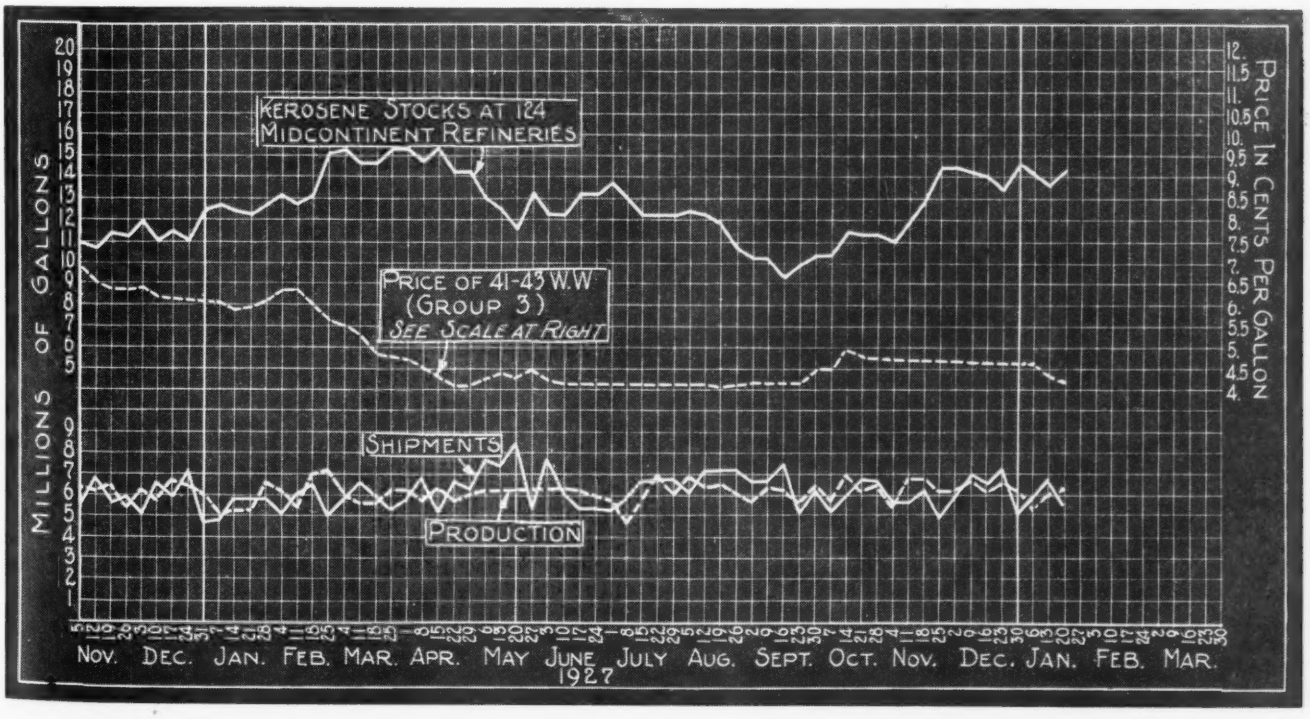
	Gallons
GASOLINE	
Production	130,210,000
Shipments	127,880,000
Net change in stocks	+ 2,330,000
Ratio sales to production	98.2%
KEROSENE	
Production	23,517,000
Shipments	23,164,000
Net change in stocks	+ 353,000
Ratio sales to production	98.5%
STOVE DISTILLATE	
Production	4,853,000
Shipments	8,564,000
Net change in stocks	— 3,711,000
Ratio sales to production	176.5%
GAS OIL	
Production	24,833,000
Shipments	31,153,000
Net change in stocks	— 6,320,000
Ratio sales to production	125.4%
FUEL OIL	
Production	101,447,000
Shipments	108,197,000
Net change in stocks	— 6,750,000
Ratio sales to production	106.7%

Barometer of Mid-Continent Refinery Market—Week Ending January 20

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 124 Plants to National Petroleum News

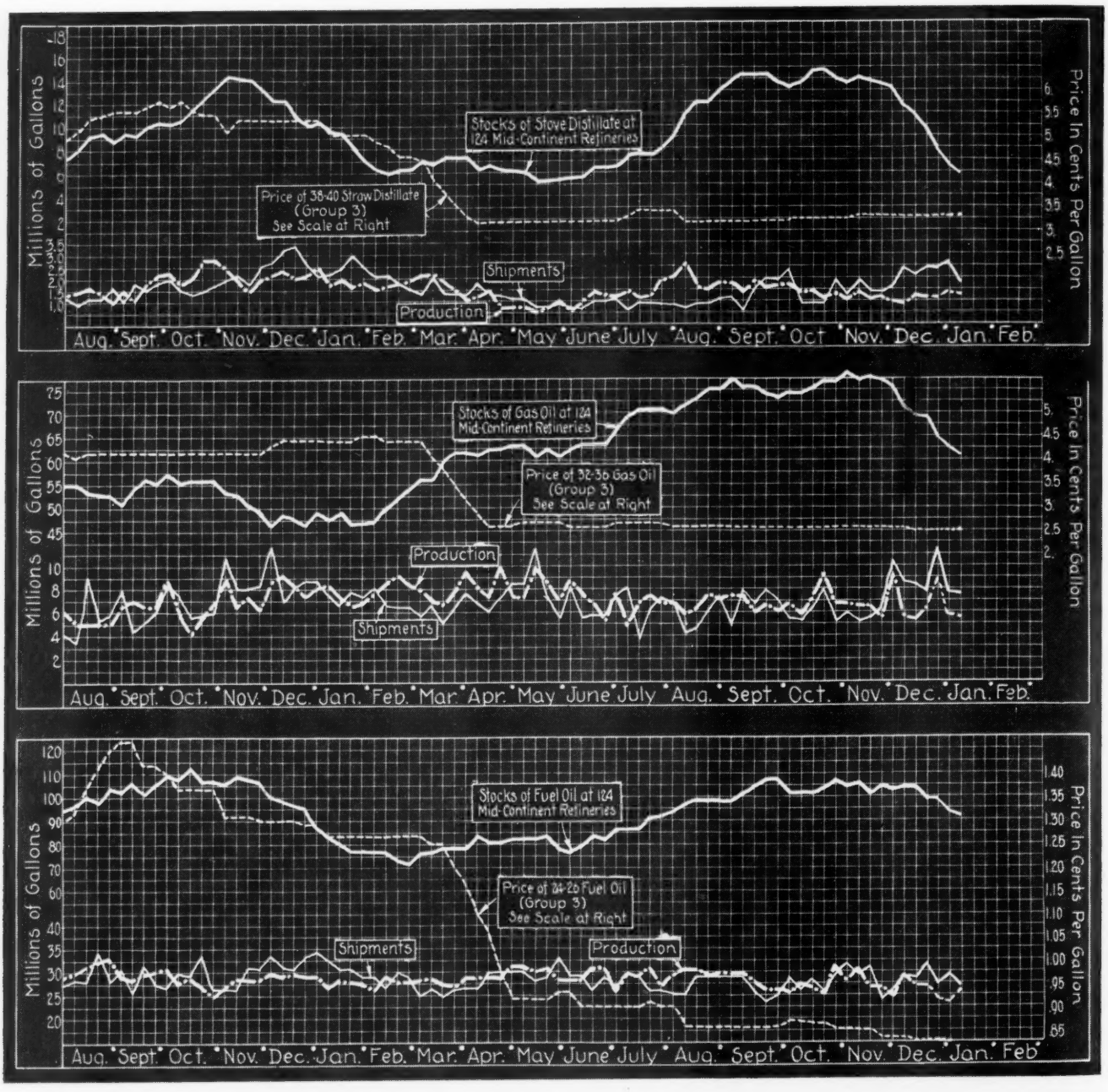

Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at 124 Mid-Continent Refineries
Millions of Gallons
Production
Shipments
Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date shown in table on opposite page


KEROSENE STOCKS AT 124 MIDCONTINENT REFINERIES
PRICE OF 41-43 W.W (GROUP 3) SEE SCALE AT RIGHT
SHIPMENTS
PRODUCTION
MILLIONS OF GALLONS
PRICE IN CENTS PER GALLON
Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1927

Barometer of Mid-Continent Refinery Market—Week Ending January 20

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 124 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at 124 Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct Nov. Dec. Jan. Feb.
Stocks of Gas Oil at 124 Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
Stocks of Fuel Oil at 124 Mid-Continent Refineries
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Shipments
Production

groups showed increases in crude runs. Kansas refiners showed a reduction of 3,600 barrels daily average or 7.2 per cent to 46,710 barrels per day. Oklahoma plants increased their runs 7,650 barrels daily average to 103,786 barrels per day. Texas plants reported an increase of 1,500 barrels daily average and north Louisiana and Arkansas plants showed an increase of 1,700 barrels daily average. For the field as a whole crude runs were advanced 7,300 barrels daily average or 3.1 per cent to 246,326 barrels per day. Runs for the week are still around 15 000 barrels per day less than the December average.

Total gasoline shipments for the week were 32,665,000 gallons as compared with 33,627,000 gallons during the second week of the year, a decrease of 2.9 per cent. Production was increased to 33,824,000 gallons, allowing stocks to increase 1,100,000 gallons. Reductions in gasoline stocks were reported by north and central Texas plants and by the north Louisiana and Arkansas group. Kansas reported an almost even balance between production and shipments. Oklahoma reported an increase in stocks of nearly 2,000,000 gallons.

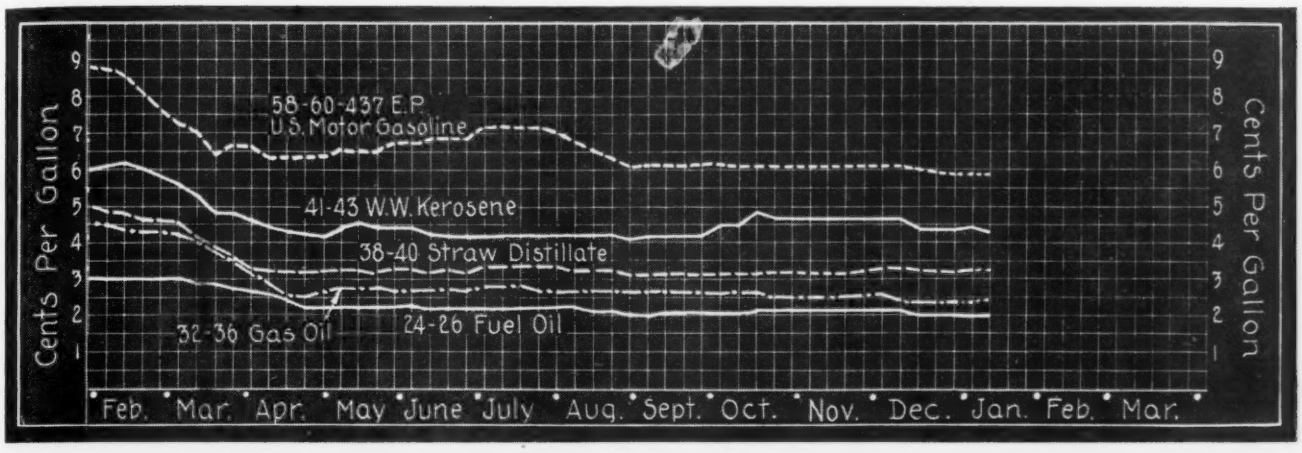
Demand for kerosene dropped off in every state except Oklahoma. For the who'e field shipments dropped 12.8 per cent to 5,638,000 gallons and stocks were increased 3.9 per cent to 14,094,000 gallons.

The heavy draft on stove distillate stocks continued bringing total reserves on Jan. 20 down to 5,951,000 gallons. A year ago distillate stocks totaled 8,189,000 gallons.

Gas oil stocks were reduced 2,000,000 gallons to 61,804,000 gallons during the week. Gas oil was the only principal commodity which showed an increase in shipments.

Fuel oil production was increased more than 2,000,000 gallons during the week to 25,929,000 gallons while shipments dropped a million gallons to 27.078 000 gallons. Stocks were

Current Prices of Principal Mid-Continent Refined Products



Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this Issue

reduced 1,150,000 gallons to 92,625,000 gallons.

During the four weeks ended Jan. 20 gasoline stocks increased only 2,330,000 gallons as compared with an increase of 12,644,000 gallons in the same period a year ago. Kerosene stocks increased 353,000 gallons while a year ago the increase was 1,356,000 gallons. Distillate stocks were cut 3,711,000 gallons as compared with 2,050,000 gallon reduction a year ago. Gas oil stocks were cut 6,320,000 gallons as compared with 165,000 gallons last year but fuel oil stocks were cut only 6,750,000 gallons in the past four weeks as compared with 16,939,000 gallons a year ago.

Head of Victor Stations Killed in Airplane

WORCESTER, Mass., Jan. 20.—George W. Knowlton, 3rd, president of Victor Filling Stations, Inc., Worcester was killed in an airplane crash Jan. 10. Mr. Knowlton was being instructed in aviation and was practicing a forced landing when the plane went into a slip 500 feet in the air and crashed to the ground near the Worcester airport. He died a few hours later.

For the time being Victor Filling Stations is in charge of Victor Mandoff, founder and the treasurer, and the company will be reorganized soon. It is probable that Major Geo. W. Knowlton, Jr., father of the late president, will become president, taking over the interests of his son.

Mr. Knowlton, 3rd, was graduated from Middlesex and Harvard. After leaving college he entered the business of Wm. Knowlton & Co. at West Upton, Mass., until the company was sold in April when he became president of Victor Filling Stations. Mr. Mandoff, the founder, said the business had prospered and been successful under Mr. Knowlton's direction.

Wadsworth Heads Refg. Division For Independent Oil & Gas Co.

Staff Special
TULSA, Jan. 23

J. M. WADSWORTH of the Independent Oil & Gas Co., has been made manager of the refining division of the company, it was announced this week. In addition to being in charge of sales, traffic and manufacturing departments of the refining division Mr. Wadsworth will have supervision of the Oklahoma pipe lines of the company. He has moved his offices to Tulsa.

Mr. Wadsworth was made manager of the Independent's refinery at Okmulgee on Nov. 1, 1926. He resigned as general superintendent of refineries for the Pierce Petroleum Corp. to take the new position. During the past 14 months Mr. Wadsworth has supervised operations at the plant and made many changes to increase the flexibility of the refinery and improve its products.

In his 17 years in the refining and producing divisions and in his activities during the war, Mr. Wadsworth has had a remarkably varied experience. After his graduation from Stanford university in 1910 Mr. Wadsworth spent four years on the geological and statistical staff of the Associated Oil Co. in California. Later, as superintendent of construction for the Shell Co. of California, he built that company's Martinez refinery.

For three years beginning in August, 1916, Mr. Wadsworth was in the government service as a petroleum engineer for the Bureau of Mines. His studies of fuel utilization resulted in his appointment as engineer for the U. S. Fuel Administration in California during the war. On the submarine chaser U. S. S. Gem, he conducted important studies of the use of pulverized coal and colloidal fuel in addition to his land work.

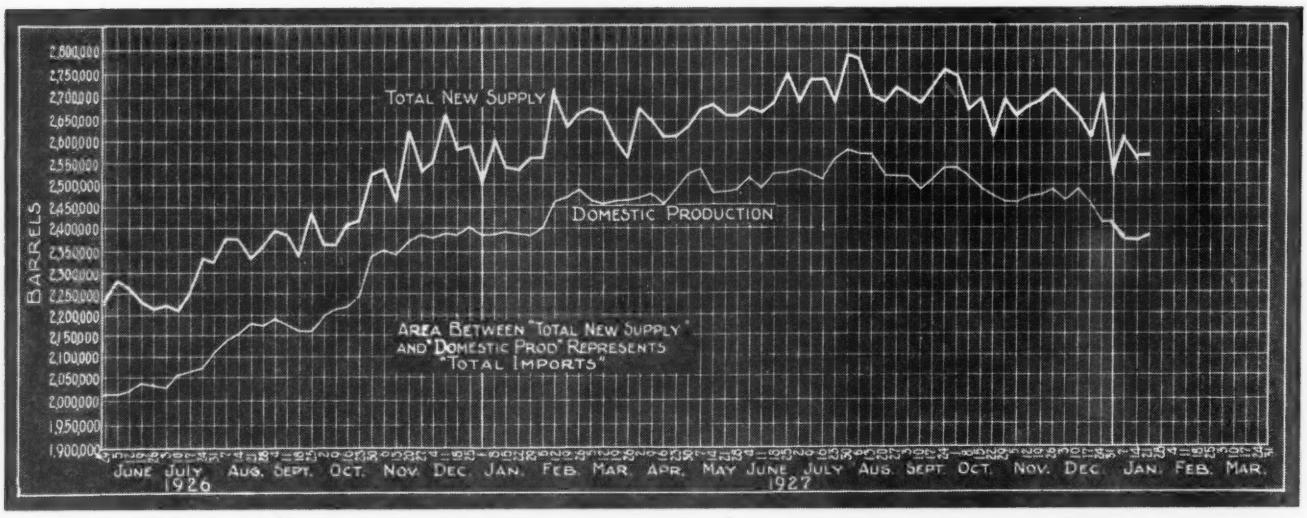
At the close of the war Mr. Wadsworth joined the Empire companies, first as consulting engineer and later as general superintendent of refineries. In 1921 he assumed a similar position with Pierce, serving part of the time as acting superintendent of the Sand Springs plant and part of the time as general superintendent of refineries.

The Independent plant at Okmulgee which he has operated during the past year is a 6,000-barrel refinery making special technical and cleaners' napthas, gasolines, kerosenes, distillates, a full line of lubricating oils including bright stock and finished motor oils. The motor oils are made frm selected green crude produced in the Okmulgee district adjacent to the plant and gathered in the Independent's own system of gathering lines. The company likewise has a main line connecting the plant with the Seminole district and other fields between Seminole and Okmulgee.

Court Refuses Rehearing In "Muny" Case

WASHINGTON, Jan. 24.—The Supreme Court of the United States Jan. 23 denied the application of the Standard Oil Co. of Nebraska for rehearing in the Lincoln, Neb., municipal gasoline station case. The Standard had asked for a rehearing on the grounds that the two cases on which the decision was based in favor of the city were not broad enough to cover the municipal station case.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Jan. 21	Jan. 14
Production east of Rockies	1,764,300	1,757,500
Increase		6,800
Total production in U. S.	2,380,900	2,373,100
Increase		7,800
Crude oil imports	183,286	188,000
Decrease		4,714
Total crude supply	2,564,186	2,561,100
Increase		3,086

OKLAHOMA

	Jan. 21	Jan. 14
North Braman	3,100	3,200
South Braman	1,900	1,950
Blackwell	3,850	3,850
Hubbard	2,850	2,750
Thomas	1,750	1,750
Tonkawa	14,950	15,000
Garber	9,950	10,050
Burbank	39,000	37,050
Osage, outside Burbank	39,000	37,050
Watchorn	1,150	1,200
Cushing	21,100	21,100
Yale Jennings	9,000	9,050
Davenport	2,450	2,200
Bristow-Slick	24,600	24,500
North Okmulgee	15,900	16,000
Lyons-Deaner	6,100	6,100
Stroud	1,050	1,250
Cromwell	10,050	10,700
Papoose	5,200	5,400
Wewoka	8,300	8,750
Seminole	56,600	56,050
Bowlegs	99,650	101,800
Searight	20,050	20,050
Little River	36,650	36,500
Earlsboro	124,400	130,100
Duncan district	6,700	6,750
Graham	6,250	6,300
Fox	1,850	1,850
Healdton	14,600	14,600
Hewitt	9,000	9,000
Scholem Alechem	12,800	12,900
Others	76,450	75,550
Total, Oklahoma	676,950	683,050
Decrease		6,100

KANSAS

	Jan. 21	Jan. 14
Greenwood County	30,200	30,700
Florence-Covert	1,450	1,450
Peabody-Elbing	3,750	3,750
Eldorado-Towanda	14,250	14,250
Augusta-Fox-Bush	4,200	4,200
Rainbow Bend	1,900	1,950
Russell	2,300	2,300
Churchill	12,050	10,900
Others	38,500	36,000
Total, Kansas	108,600	105,500
Increase		3,100

NORTH LOUISIANA

	Jan. 21	Jan. 14
Homer	4,400	4,400
Haynesville	6,300	6,350
Caddo, light	11,500	11,750
Caddo, heavy	3,900	4,000
De Soto, Red River	4,150	4,150
Elm Grove	650	650
Bellevue	1,000	1,050
Cotton Valley	4,400	4,500
Urania	8,350	7,750
Pleasant Hill	700	800
Total, North Louisiana	45,350	45,400
Decrease		2,050

ARKANSAS

	Jan. 21	Jan. 14
El Dorado	5,200	5,200
Champagnolle	700	700
Smackover, light	8,850	8,750
Smackover, heavy	68,700	68,600
Stephens	1,150	1,150
Nevada	2,850	2,950
Lisbon	2,500	2,500
Others	100	100
Total, Arkansas	90,050	89,950
Increase		100

TEXAS (OUTSIDE GULF COAST)

Panhandle District

	Jan. 21	Jan. 14
Hutchinson County	52,200	50,300
Carson County	7,800	7,500
Gray County	15,600	16,100
Wheeler County	1,250	1,000
Others	50	50
Total, Panhandle District	76,900	74,950
Increase		1,950

North Texas

	Jan. 21	Jan. 14
Burkburnett	12,050	12,000
Electra	11,300	11,250
Iowa Park and K-M-A	1,900	1,800
Wilbarger	10,600	10,850
Archer County	22,000	22,500
Montague-Cooke	14,550	14,900
Others	650	700
Total, North Texas	73,050	74,000
Decrease		950

West Central Texas

	Jan. 21	Jan. 14
Stephens County	7,600	7,700
Eastland-Desdemona	8,500	8,750
Brown County	15,200	15,600
Coleman County	1,000	1,000
Callahan County	4,000	4,150
Shackelford County	5,500	5,250
Young County	9,700	9,850
Throckmorton County	1,200	1,250
Palo Pinto County	450	450
Others	2,150	2,050
Total, West Central Texas	55,300	56,050
Decrease		750

West Texas

	Jan. 21	Jan. 14
Jones County	1,200	1,250
Mitchell and Scurry Counties	3,400	2,900
Howard County	6,900	6,500
Reagan County	22,500	22,550
Crane and Upton Counties	104,900	105,300
Crockett County	2,700	2,500
Pecos County	49,650	40,500
Winkler	80,350	74,700
Others	2,100	2,300
Total, West Texas	273,700	267,500
Increase		6,200

East Central Texas

	Jan. 21	Jan. 14
Mexia	7,850	8,300
Currie	600	600
Richland	650	700
Wortham	2,050	2,200
Corsicana-Powell	12,600	12,800
Nigger Creek	1,850	1,700
Total, E. Central Texas	25,600	26,300
Decrease		700

Southwest Texas

	Jan. 21	Jan. 14
Luling	13,050	13,250
Lytton Springs	1,600	1,600
Somerset	800	800
Laredo District	6,950	7,000
Piedras Pintas	.....	.....
Dale	400	400
Others	400	400
Total, Southwest Texas	23,200	23,450
Decrease		250
Total, Texas—(Outside Gulf Coast)	527,750	522,250
Increase		5,500

GULF COAST

Coastal Texas

	Jan. 21	Jan. 14
West Columbia	8,600	8,300
Damon Mound	850	900
Big Creek	2,000	2,050
Boling	2,300	2,000
Blue Ridge	4,150	3,650
Pierce Junction	10,350	9,200
Humble	1,800	1,900
Goose Creek	7,700	7,200
South Liberty	2,150	2,400
Hull	12,250	11,600
Saratoga	1,050	1,050
Batson	1,300	1,400
Sour Lake	3,650	3,700
Spindletop	44,950	46,800
Orange County	5,200	4,050
Others	3,100	3,350
Tot., Coastal Tex.	111,400	109,550
Increase		1,850

Coastal Louisiana

	Jan. 21	Jan. 14
Vinton	4,550	4,550
Lockport	4,800	4,900
Evangeline	1,100	1,050
Edgerly	2,050	2,200
Others	2,600	1,550
Total, Coastal Louisiana	15,100	14,250
Increase		850
Total Gulf Coast	126,500	123,800
Increase		2,700

ROCKY MOUNTAIN

Wyoming

	Jan. 21	Jan. 14
Salt Creek	44,150	42,300
Grass Creek	2,500	2,500
Elk Basin	900	900
Pig Muddy	2,650	2,650
Lost Soldier	2,700	2,750
Rock Creek	2,700	2,550
Lance Creek	650	650
Teapot Dome	.....	.....
Others	2,250	2,850
Total, Wyoming	58,500	57,150
Increase		1,350

Montana

	Jan. 21	Jan. 14
Cat Creek	1,750	1,800
Sunburst	9,000	9,000
Others	200	200
Total, Montana	10,950	11,000
Decrease		50

Colorado

	Jan. 21	Jan. 14
Moffat (Craig)	1,300	1,100
Fort Collins	2,950	3,000
Florence	950	900
Others	1,800	1,950
Total, Colorado	7,000	6,950
Increase		50

New Mexico

	Jan. 21	Jan. 14
Table Mesa	.....	.....
Artesia	1,250	1,450
Hogback	650	650
Rattlesnake	300	250
Others	200	100
Tot. N. Mexico	2,400	2,450
Decrease		50
Total, Rocky Mountain	78,850	77,550
Increase		1,300

California

	Jan. 21	Jan. 14
Santa Fe Springs	38,500	38,500
Long Beach	114,500	115,000
Huntington Beach	60,500	60,000
Torrance	20,000	20,000
Dominguez	13,000	13,500
Rosecrans	8,000	8,000
Inglewood	31,000	31,500
Midway-Sunset	80,500	80,500
Ventura Avenue	53,500	51,500
Seal Beach	41,500	41,000
Others	155,600	156,100
Total California	616,600	615,600
Increase		1,000
Eastern (Including Ill., Ind., Ky., O., W. Va., Pa., and N. Y.)	110,250	110,000
Increase		250

Second Well in Twp. 8-5 Also To Be Shut In When Completed

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Jan. 21

IT BECAME necessary today to hold another meeting of Seminole district operators. The occasion this time was the drilling in of the Indian Territory Illuminating Oil Co.'s wildcat in 16-8-5, west of Bowlegs and south of Earlsboro fields. Early in December the Barnsdall Oil Co. completed its well in 14-8-5 two miles from the new one of the I.T.I.O., found it would make between 2,500 and 3,000 barrels daily, shut it in under the cooperative agreement that prevails on a number of producing wildcats in the district.

The I.T.I.O. well found the Wilcox sand a trifle higher on structure than did the Barnsdall and these circumstances lead to the conclusion that another major pool is in the process of incubation. Today's meeting was devoted to discussion of what to do about it. The I.T.I.O. agreed to drill in its well, which flowed 25 barrels per hour from the Wilcox topped at 4,301 feet, then shut in as the Barnsdall did. Under those conditions it is believed other drilling will be delayed for a time. The expiration date of the present agreement is March 1 and Umpire Collins raised the question of an extension. Because several of the interested operators were not present, action on this suggestion was not possible. Of those present no one opposed the idea of extension. Some want to make it three months, others even favor a longer period.

Only one other well is drilling in this township. The Texas Co. in 12-8-5 is getting well down but not far enough to make any predictions on the outcome. It is a half mile east and north of the Barnsdall well.

Aside from the 8-5 situation, the week was comparatively featureless. Seminole production hangs steadily around the 335,000-340,000 figure, thereby confounding the prophets. Up to Jan. 1 this district had produced 146,362,000 barrels. The original Seminole City pool, in 9-6, had made 54,341,000 barrels. Bowlegs was second with 37,537,000, closely followed by Earlsboro with 36,602,000 barrels. Searight, usually looked upon as the poor relation, had yielded the respectable total of 12,724,000; Little River 5,143,000 and the various wildcats which are restricted in production, had made 13,138 barrels.

Of this vast amount produced, 19,016,974 barrels were carried in storage in the district. As of the first of the year the storage situation stood as follows:

Company	Stocks
Amerada Petroleum	1,049,749
Barnsdall	1,789,195
Blackwell O&G	89,150
Carter	1,461,491
Continental Oil	564,860
Cosden (Mid-Con't.)	159,112
Crosbie	320,486
Empire G&F	251,660
Gypsy	537,950
Independent O&G	525,161
I.T.I.O.	3,653,332
Magnolia	1,753,142
McCulloch	77,196
Phillips Pet.	200,741
Pure	795,910
Prairie	1,320,510
Prairie & I.T.I.O.	2,414,815
Roxana	3,790
Shaffer O&R	50,000
Slick	1,265,250
Superior	103,676
Tidal Oil	408,058
Turman Oil	120,150
Twin State	101,590
	19,016,974

Logan county, the much discussed deep sand territory of central Oklahoma, has bettered its performance but little during the week. The second well to develop production in the true Wilcox was the Roxana Petroleum Corp.'s No. 1 Ross, which started flowing a week ago from total depth of 6,050 feet. It is in the northwest corner of 29-19-4W, and is three-fourths of a mile from the discovery McCully well, in Sec. 30. The Ross well for the 24 hours ended the morning of Jan. 21 made 653 barrels while the discovery, which is nearly seven months old, made 2,152 barrels.

A quarter of a mile southeast of the discovery, Roxana's No. 1 Williams, in the northwest corner of Sec. 32, swabbed 114 barrels during the same 24-hour period. Apparently it is producing from the Simpson formation overlying the true Wilcox. The north offset to the Williams well was a failure in the Wilcox, but is flowing between 75 and 100 barrels from the Simpson. Wentz Oil Corp. shot its test in the northeast corner of Sec. 31, a west offset to the Williams and a diagonal offset south-

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended January 21, 1928

	January 21 Loc.	Rigs	Drg.	S.D.	Week Total	Ended January 14 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	2	13	35	1	51	4	18	31	2	55
Other Osage	4	7	18	3	32	2	5	20	3	30
Bristow-Cushing	10	6	41	6	63	7	6	35	7	55
North Oklahoma	14	6	78	39	137	17	8	64	50	139
South Oklahoma	6	9	104	43	162	7	12	109	48	176
Muskogee	..	9	43	20	72	..	5	20	43	68
Okmulgee-Bristow	7	32	57	19	115	8	31	55	23	117
Seminole Dist.	15	22	173	20	230	16	27	170	27	240
Total Oklahoma	58	104	549	151	862	61	112	504	203	880
KANSAS	28	43	105	87	263	28	43	105	87	263
TEXAS										
Central	..	127	202	151	480	..	125	206	144	275
Panhandle	..	99	77	90	266	..	100	74	93	267
N. Central	..	35	66	44	145	..	32	80	34	146
West	..	108	168	180	456	..	104	214	149	467
Laredo	..	1	25	19	45	..	1	25	19	45
Total Texas	..	370	538	484	1,392	..	362	599	439	1,400
NEW MEXICO	..	3	21	21	45	..	4	19	22	45
GRAND TOTAL	86	520	1,213	743	2,562	89	521	1,227	751	2,588

Completions in North Louisiana and Arkansas, Week Ended January 19, 1928

Louisiana—Webster Parish—Spring Hill

Company	Well	Location	Depth	Yield
Magnolia Pet. Co.	W. B. Roseberry No. 1	29-23-9	2725	32M gas

Caddo Parish—Pine Island

Dixie Oil Co.	Clark et al No. 1	14-21-15	3956	160 bbls.
Texas Company	J. K. Herold No. 10	14-21-15	3925	80 bbls.

Caddo Parish—Shreveport

Woodley & Collins	McVey D-1	23-19-14	2603	dry, aband.

Caddo Parish—Blanchard

Magnolia Pet. Co.	John Furrh No. 1	32-18-16	2755	junked, aband.

Sabine Parish—Pleasant Hill

Arkansas Fuel Co.	Logan No. 10	32-10-12	3980	dry, aband.

Richland Parish

Company	Well	Location	Depth	Yield
Moody & Seagraves	Hemlar B-2	6-15-6E	2495	55M gas

Waskom—Harrison County, Texas

J. R. Bahan	Furrh No. 6	J. Short HRS	1015	5M gas

Arkansas—Nevada County

Buffalo Oil Co.	Culp No. 3	22-15-19	2175	20 bbls.
O'Brien et al.	R. Haynie 1-B-1	6-14-20	1220	50 bbls.

Champagnolle (Calion)—Union County

Ohio Oil Co.	H.R.F. Goode No. 1	2-17-14	3025	junked, aband.
Ohio Oil Co.	Rich Pumphrey No. 3	2-17-14	3087	salt water, aband.

Smackover

Humble O. & R. Co.	F. Murphy No. 4	3-16-15	2630	5M gas

Seminole District Production by Companies and Leases, January 20 and January 13, 1928

Company	Farm	S.T.R.	Jan. 20th Wells	Jan. 20th Prod.	Jan. 13th Wells	Jan. 13th Prod.
Amerada	Rascoe	15- 8-6	8	3,260	8	3,100
Atlantic	Baker	1- 8-6	4	555	4	654
Atlantic	Fleet	23- 8-6	4	570	4	510
Atlantic	Grayson	12- 8-6	3	1,028	3	889
Atlantic	A. Jones	10- 8-6	3	114	3	109
Atlantic	C. Jones	9- 8-6	2	311	2	489
Total Atlantic			16	2,578	16	2,651
Barnsdall	McNac	28- 8-6	1	33	1	37
Barnsdall	Murrow	11- 8-6	4	776	4	1,048
Total Barnsdall			5	809	5	1,085
Carter	Bowlegs	15- 8-6	3	1,270	3	1,230
Carter	Burden	23- 8-6	3	390	3	415
Carter	Harjoche	15- 8-6	6	980	6	960
Carter	Hilly	23- 8-6	3	610	3	650
Carter	Jones	11- 8-6	1	2,160	1	2,290
Carter	Melisse	9- 8-6	1	855	1	880
Carter	McGeisey	21- 8-6	1	30	1	30
Carter	Walker	15- 8-6	3	660	3	480
Carter	Wise	23- 8-6	12	5,370	12	5,595
Total Carter			33	12,325	33	12,530
Empire	Lacey	15- 8-6	6	701	6	811
Empire	Wise	23- 8-6	2	770	2	860
Total Empire			8	1,471	8	1,671
Gypsy	Bowlegs	22- 8-6	1	270	1	210
Gypsy	Bradley	8- 8-6	1	32	1	30
Gypsy	Cumsey	8- 8-6	4	1,660	4	1,747
Gypsy	Dosar	7- 8-6	1	100	1	100
Gypsy	Grayson	13- 8-6	4	1,222	4	1,327
Gypsy	Harjoche	10- 8-6	1	1,080	1	1,132
Gypsy	Jones	11- 8-6	1	442	1	500
Gypsy	Walker	15- 8-6	8	2,362	8	2,415
Gypsy	Wise	23- 8-6	3	95	3	110
Total Gypsy			24	7,263	24	7,571
Indep. et al	Barnett-A	21- 8-6	2	263	2	344
I. T. I. O.	Barnett-B	24- 8-6	1	366	1	156
I. T. I. O.	Billington	22- 8-6	5	683	5	565
I. T. I. O.	Bowlegs	22- 8-6	11	1,413	11	1,310
I. T. I. O.	Burden	23- 8-6	1	0	1	11
I. T. I. O.	Davis	13- 8-6	4	1,662	4	1,878
I. T. I. O.	Fay	18- 8-6	9	2,997	8	4,191
I. T. I. O.	Goforth	15- 8-6	11	1,662	11	1,598
I. T. I. O.	Livingston	15- 8-6	11	4,309	11	4,538
I. T. I. O.	Lizzie	11- 8-6	2	690	2	781
I. T. I. O.	Walker	15- 8-6	8	1,259	8	1,307
I. T. I. O.	Wilmont	15- 8-6	4	1,017	4	1,081
I. T. I. O.	Youngblood	22- 8-6	2	323	2	140
Total I. T. I. O.			71	16,383	70	17,569
McCulloch	Bowlegs	22- 8-6	3	355	3	307
Magnolia	Davis-BF	13- 8-6	1	656	1	658
Magnolia	Davis-M	13- 8-6	1	440	1	471
Magnolia	Hammond	10- 8-6	2	104	2	120
Magnolia	Rhodes	10- 8-6	2	4,998	2	5,174
Magnolia	Van Buskirk	9- 8-6	1	72	1	452
Total Magnolia			7	6,270	7	6,875
Mid-Continent	Baker	10- 8-6	4	1,634	4	2,095
Mid-Continent	Bowlegs	22- 8-6	1	40	1	40
Mid-Continent	Smith	12- 8-6	5	760	5	800
Total Mid-Continent			11	2,789	11	2,936
Minnehoma	Bowlegs	15- 8-6	3	269	3	200
Prairie	Gahagan	23- 8-6	4	702	4	675
Prairie	Harber	10- 8-6	8	4,605	8	3,710
Prairie	Jones	11- 8-6	4	1,065	4	1,075
Prairie	Templeton	12- 8-6	4	2,260	4	3,270
Prairie	Whitney	23- 8-6	4	435	4	430
Total Prairie			24	9,067	24	9,160
Pure	Reed	14- 8-6	15	4,189	15	4,278
Pure	Strother-D	14- 8-6	4	703	4	764
Pure	Strother-E	14- 8-6	1	0	1	0
Pure	Strother-F	10- 8-6	6	1,538	3	1,293
Total Pure			26	6,430	22	6,335
Roxana	Taylor	16- 8-6	6	1,493	6	1,528
Shaffer	Lacey	14- 8-6	3	595	3	522
Sinclair	Bowlegs	22- 8-6	1	55	1	30
Sinclair	Cumsey	10- 8-6	3	6,380	3	6,875
Sinclair	Ellen	11- 8-6	6	2,130	6	2,241
Sinclair	Harjo	14- 8-6	3	860	3	1,020
Sinclair	Jones	8- 8-6	6	5,287	6	5,512
Sinclair	Taylor	10- 8-6	4	3,673	4	3,845
Sinclair	Walker	22- 8-6	4	850	4	885
Total Sinclair			27	19,235	27	18,288
Texas	Reed	14- 8-6	10	3,745	10	3,345
Tidal	Grayson	13- 8-6	3	985	3	1,260
Tidal	Harjoche	10- 8-6	6	2,190	6	2,320
Total Tidal			9	3,175	9	3,580
Twin State	Jones	10- 8-6	2	0	2	0
TOTAL BOWLEGS			299	97,418	289	101,633

LITTLE RIVER

Amerada	Fore	35- 8-6	2	1,325	2	1,280
Amerada	Nitey	35- 8-6	3	2,560	3	2,655
Total Amerada			5	3,885	5	3,935
Blackwell	Nitey	35- 8-6	8	3,810	8	4,092
Carter	Fish	1- 7-6	4	1,700	4	1,450
Carter	Jackson	11- 8-6	1	700	1	100
Total Carter		2	5	2,400	5	1,550
Continental	Cosar	- 7-6	2	575	2	620
Gypsy	Brown	33- 8-6	1	50	1	50
Gypsy	Campbell	36- 8-6	2	260	2	140
Gypsy	Nungee	1- 8-6	1	55	1	35
Gypsy	Pottey	35- 8-6	3	670	3	540
Gypsy	Wadsworth	1- 7-6	1	0	1	0
Total Gypsy			8	985	8	765
Independent	Harris	23- 7-6	1	108	1	104
Indep. et al	Davis	2- 7-6	2	2,130	2	1,942
Total Independent			3	2,238	3	2,046
I. T. I. O.	Campbell	1- 7-6	1	170	1	175
I. T. I. O.	Dungan	35- 8-6	3	3,004	3	2,479
I. T. I. O.	House-MA	1- 7-6	1	391	1	396
I. T. I. O.	House-WE	1- 7-6	1	48	1	22
I. T. I. O.	House-WE	2- 7-6	3	1,927	3	1,942
I. T. I. O.	Jackson	1- 7-6	3	2,497	3	2,491
I. T. I. O.	McCulla	1- 7-6	3	1,054	3	1,097
I. T. I. O.	Nitey	2- 7-6	6	1,613	6	1,453
I. T. I. O.	Phoebe-A	36- 8-6	3	869	3	946
I. T. I. O.	Phoebe-B	36- 8-6	3	586	3	431
I. T. I. O.	Reed	1- 7-6	1	87	1	156
I. T. I. O.	Hull	26- 8-6	1	140	1	118
I. T. I. O.	Sotkneche	1- 7-6	4	1,044	4	1,006
Total I. T. I. O.			33	13,430	33	12,713
Magnolia	Cruse	2- 7-6	1	765	1	750
Magnolia	Pottey	35- 8-6	2	650	2	645
Total Magnolia			3	1,415	3	1,395
Mid-Continent	Wadsworth	26- 8-6	7	1,280	7	1,200
Mid-Continent	Smith	12- 8-6	1	45	1	35
Total Mid-Continent			8	1,325	8	1,235
Pine et al	Pottey	35- 8-6	2	1,617	1	1,095
P & R	Dungan	35- 8-6	2	165	2	180
P & R	House	2- 7-6	4	2,175	4	2,320
Total P & R			6	2,340	6	2,500
Roxana	Smith	1- 7-6	1	15	1	15
Shaffer	Narcome	36- 8-6	1	135	1	150
Sinclair	Cosar	36- 8-6	1	1,315	1	1,125
Snowden et al	Tiger	13- 7-6	1	195	1	215
Superior	Wadsworth	1- 7-6	1	26	1	21
Texas	Coker	1- 7-6	3	660	3	685
Tidal	House	1- 7-6	3	1,857	3	1,660
Tidal	Johnson	1- 7-6	1	80	1	50
Total Tidal			4	2,340	4	1,710
TOTAL LITTLE RIVER			96	38,353	95	35,876

EARLSBORO

Amerada	Anderson	15- 8-5	3	1,670	3	1,575
Amerada	Cowden	4- 9-5	8	2,280	8	2,340
Amerada	Rodgers	3- 8-5	3	1,950	3	2,290
Total Amerada			14	5,900	14	6,205
Barnsdall	Brown	10- 9-5	4	2,482	4	2,357
Barnsdall	Bruner-F	2- 9-5	2	654	2	813
Barnsdall	Bruner-N	11- 9-5	4	1,662	4	1,683
Barnsdall	Cudjo	11- 9-5	1	27	1	27
Barnsdall	Davis-D	11- 9-5	3	1,796	3	1,824
Barnsdall	Davis-J	11- 9-5	4	429	4	755
Barnsdall	Davis-M	11- 9-5	3	272	3	1,760
Barnsdall	Gibson	9- 9-5	8	2,469	7	2,569
Barnsdall	Hearn	15- 9-5	1	6	1	6
Barnsdall	Ingram	4- 9-5	7	6,121	7	4,865
Barnsdall	Pack	10- 9-5	5	250	4	178
Barnsdall	Peter	10- 9-5	4	226	4	75
Barnsdall	Sango	2- 9-5	5	5,273	3	3,206
Barnsdall	Sebolka	15- 9-5	1	883	1	890
Barnsdall	Sullivan-H	11- 9-5	2	12	2	38
Barnsdall	Sullivan	10- 9-5	3	78	3	83
Barnsdall	Watsutke	12- 9-5	4	1,278	4	1,464
Total Barnsdall			61	24,898	57	22,593
Carter	Davis	13- 9-5	1	365	1	185
Carter	Payne	12- 9-5	3	670	3	790
Carter	Sango	2- 9-5	4	4,575	4	5,210
Total Carter			8	5,610	8	6,185
Continental	Kays	2- 9-5	2	315	2	350
Continental	Spencer	12- 9-5	4	1,236	4	2,055
Total Continental			6	1,551	6	2,405
Crosbie	Bryant	9- 9-5	2	0	2	35
Empire	Barker	12- 9-5	1	2,572	1	2,692
Empire	Edmundson	3- 9-5	3	1,190	3	1,212
Total Empire			4	3,762	4	3,904
Gypsy	Bruner	10- 9-5	4	2,922	4	2,187
Gypsy	Carter	11- 9-5	11	4,732	11	3,270
Gypsy	Earl	16- 9-5	1	17	1	20
Gypsy	Hunick	5- 9-5	1	2,202	1	2,257
Gypsy	Noble	12- 9-5	4	4,580	4	4,997
Gypsy	Peter	10- 9-5	6	222	6	155
Gypsy	Sango	1- 9-5	4	6,172	4	6,787
Gypsy	State	16- 9-5	4	1,480	4	1,142
Total Gypsy			35	22,339	35	20,822
Independent	Bruner	10- 9-5	4	20	4	30
Independent	Gaines	11- 9-5	2	1,860	2	1,165
Independent	Knapp	8- 9-5	5	2,982	5	3,009
Independent	O'Dell	4- 9-5	4	60	4	20
Independent	Sullivan	10- 9-5	4	25	4	20
Total Independent			19	4,947	19	4,244
Magnolia	Bryant	9- 9-5	6	2,521	6	2,319
Magnolia	Cowden	4- 9-5	4	106	4	97
Magnolia	Edmundson	3- 9-5	3	48	3	24
Magnolia	Holmsley	11- 9-5	8	4,763	8	4,478
Magnolia	Ingram	10- 9-5	1	30	1	35
Magnolia	Lena	10- 9-5	3	95	3	84
Magnolia	Seay	12- 9-5	9	4,659	8	5,270

(*Continued on Page 43*)

Seminole District Production by Companies and Leases, January 20 and January 13, 1928

(*Continued from Page 42*)

Company	Farm	S.T.R.	Jan. 20th Wells	Jan. 20th Prod.	Jan. 13th Wells	Jan. 13th Prod.
Magnolia	Simpson	10- 9-5	4	248	4	388
Magnolia	Sparks	11- 9-5	7	3,083	7	2,824
Magnolia	Sullivan	12- 9-5	3	194	3	485
Total Magnolia			50	15,772	49	16,047
Mid-Continent	McCumber	9- 9-5	7	950	7	920
Mid-Kansas	Anderson	14- 9-5	4	300	4	355
Phillips	Dunnaway	15- 9-6	1	30	1	20
Phillips	Graham	9- 9-5	7	248	7	195
Total Phillips			8	278	8	215
Prairie	Baker	23- 9-5	1	50	1	50
Prairie	Davis	13- 9-5	4	1,160	4	1,165
Prairie	Graham-C	3- 9-5	2	85	2	70
Prairie	Graham-O	10- 9-5	4	1,955	4	2,210
Prairie	Stidham	11- 9-5	13	4,780	13	5,375
Total Prairie			23	8,030	23	8,870
Roxana	Bayliss	17- 9-5	1	17	1	18
Roxana	Spencer	12- 9-5	2	2,272	2	2,436
Total Roxana			3	2,289	3	2,454
Shaffer	Clark	1- 9-5	5	1,260	5	1,376
Sinclair	Foreman	18- 9-5	1	15	1	15
Sinclair	Hollins	12- 9-5	3	600	3	750
Sinclair	Sango	2- 9-5	1	3,610	1	3,950
Total Sinclair			5	4,225	5	4,715
Skelly	Spencer	12- 9-5	2	0	2	831
Texas	Anderson	2- 9-5	6	1,242	6	1,260
Texas	Brown	10- 9-5	8	2,700	8	2,420
Texas	Rodgers	5- 9-5	3	4,990	3	5,045
Texas	Wilmont	10- 9-5	6	3,535	6	3,635
Total Texas			23	12,467	23	12,360
Tidal	Watkins	9- 9-5	6	3,190	6	2,950
Twin State	Barker	12- 9-5	4	112	4	25
Twin State	Hearn	2- 9-5	3	5,775	3	6,410
Total Twin State			7	5,887	7	6,435
TOTAL EARLSBORO			290	123,675	291	124,020
TOTAL LITTLE RIVER			96	38,353	95	35,876
TOTAL SEARIGHT			70	20,005	70	19,606
TOTAL BOWLEGS			299	97,418	298	101,633
TOTAL SEMINOLE			319	57,154	319	56,738
GRAND TOTAL SEMINOLE AREA			1,076	336,745	1,074	337,873
Avg. Per Well				313		314

Completions in Oklahoma and Kansas, Week Ended January 21, 1928

OKLAHOMA

Beckham County

Company	Well No.	Location	Depth	Init. Prod.
Coogan	1	Nec SE SE 20-9-23 W	T.D. 2600	60M

Caddo County

Company	Well No.	Location	Depth	Init. Prod.
Moran	2	SEc NW 5-5-9 W	1838-2420	40

Creek County

Company	Well No.	Location	Depth	Init. Prod.
Shaffer	4	SWc NW 17-17-7 E	No record OWD	4
Billingslea et al	2	SWc 10-15-8 E	3175-3185	30M
Pioneer	14	NWc NE NE 24-17-10 E	2445-2446	1M
Wilcox	4	NWc SE 18-14-10 E	3394-3407	225

Garvin County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	1	NEc 15-1-3 W	T.D. 2430 OWD	Dry

Garfield County

Company	Well No.	Location	Depth	Init. Prod.
Reynolds	1	SEc SW 23-22-4 W	1910-1937	10

Grady County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	1	C NW NE 10-4-8 W	T.D. 3625	Dry
Okla. Gas Utilities	5	SEc SW SE 35-5-8 W	T.D. 2120	56M
Harwell	2	C NE NW 14-4-8 W	2185-2478	39M
Carter	1	SWc NE 17-4-6 W	1836-1850	3½M

Hughes County

Company	Well No.	Location	Depth	Init. Prod.
I. T. I. O.	1	SWc SE 17-8-10 E	4149-4172	120
Ramsey Bros.	1	NWc NE SE 8-5-8 E	2751-2774	120

Kay County

Company	Well No.	Location	Depth	Init. Prod.
Carter et al	6	C SW SW 17-29-1 E	1450-1485	2.1M
Waggoner et al	1	NWc NE NE 3-25-2 W	T.D. 1442	Dry

Major County

Company	Well No.	Location	Depth	Init. Prod.
Randon	1	NEc NW 4-23-16 W	T.D. 1150	Dry

Muskogee County

Company	Well No.	Location	Depth	Init. Prod.
Metzger et al	1	SWc SE 34-15-18 E	T.D. 1926	Dry
Tennessee Six	7	SWc SE SE 1-14-17 E	1188-1200	12

Okfuskee County

Company	Well No.	Location	Depth	Init. Prod.
Schermerhorn et al	1	C SW NW 21-10-9 E	3291-3314	43M

Okmulgee County

Company	Well No.	Location	Depth	Init. Prod.
Peterson	4	NEc NW SW 9-15-14 E	1823-1841	30M
Morgan	1	NEc NW 13-11-13 E	3319-3330 OWD	25
White Eagle et al.	2	NWc NE SE 19-14-11 E	T.D. 2503	Dry
Cassellman et al	1	NEc NW NE 36-15-14 E	T.D. 672	Dry
Richardson	4	C SW SW 6-14-15 E	T.D. 690	Dry
Aggas et al	2	NWc NE NW NE 20-12-14 E	T.D. 980	Dry

Osage County

Company	Well No.	Location	Depth	Init. Prod.
Peters	8	SEc NW 17-27-6 E	2901-2961	1650
Phillips	3	SWc SE SE 17-27-6 E	2894-2972	617
Gypsy	3	NEc NW 28-27-6 E	2912-2982	982
Kewanee	7	NEc SW NE 3-26-6 E	2768-2829	415
Kewanee	9	SWc NE NE 3-26-6 E	2736-2812	354
I. T. I. O.	384	NEc SW SE 20-25-12 E	2054-2067	3¾M

Pawnee County

Company	Well No.	Location	Depth	Init. Prod.
Turner et al	1	SWc NW 29-20-9 E	1082-1120	7 & ¼M
Swift	1	NWc SW NW 33-20-9 E	1471-1491	2¾M

Pottawatomie County

Company	Well No.	Location	Depth	Init. Prod.
Gypsy	1	SWc NE 19-7-4 E	3791-3840	720

Pontotoc County

Company	Well No.	Location	Depth	Init. Prod.
Jolly Ogg	1	SEc SW 29-5-5 E	2275-2599	170
Louisiana	6	NEc SW SW 17-5-8 E	2713-2751	307
Ramsey	2	SEc SW 20-5-8 E	2598-2624	40M

Seminole County

Company	Well No.	Location	Depth	Init. Prod.
Barnsdall	2	SEc SW 2-9-5 E	4313-4322	450
Magnolia	6	SWc NW SW 12-9-5 E	4345-4357	125
Sinclair	4	SWc NW 3-9-6 E	4582-4687	35
Indep.-Amerada	2	NWc NE NE 7-9-8 E	3251-3261	80
Mid-Continent	1	SWc 12-8-6 E	4506-4524	70
I. T. I. O.	1	NEc SE SE 23-8-6 E	4395-4406	312
Magnolia	2	SEc NE 35-8-6 E	4266-4276	376
Independent	2	NWc SW SE 2-7-6 E	4412-4418	515
Twin State	2	NWc NE 12-9-5 E	T.D. 2995	Dry
Carter	2	SEc NW SW 36-8-6 E	T.D. 4237	Dry
Amerada	1	NEc SE NE 2-7-6 E	T.D. 4255	Dry
Mid-Continent	1	NEc SE NW 27-7-6 E	T.D. 4347	Dry

Stephens County

Company	Well No.	Location	Depth	Init. Prod.
Clark et al	1	SEc NW SE 36-2-9 W	T.D. 2004	Dry
Margay	1	SEc NW 7-1-8 W	T.D. 2847	Dry
Clarkson et al	1	SWc SE SE 29-1-8 W	T.D. 2286	Dry
Magnolia	1	NWc SW NE NW 30-1-8 W	2243-2307 OWD	5
Owen-Wood	8	SEc SW SE NW 12-2-8 W	2068-2079	25
Humble	1	SEc SW SE 12-1-4 W	2465-3001	225
Shermerhorn et al	1	NWc SE 13-1-4 W	2053-2731	30M

Tulsa County

Company	Well No.	Location	Depth	Init. Prod.
Jackson et al	3	NWc SW NE 21-19-12 E	1531-1550	15
Texas	1	SWc NW SE 10-19-10 E	T.D. 2601 OWD	Dry
Savory	2	NEc SE NE SW 8-16-14 E	T.D. 1992	Dry

Waggoner County

Company	Well No.	Location	Depth	Init. Prod.
Bu-Vi-Bar	2	CWL NW SW 29-18-15 E	1237-1257	15
Bu-Vi-Bar	3	C NW SW 29-18-15 E	1225-1257	20

KANSAS

Butler County

Company	Well No.	Location	Depth	Init. Prod.
Davis et al	3	NWc SW SW 3-27-6 E	3146-3158	300
Mid-Kansas	1	NWc NE 1-27-6 E	T.D. 3163	Dry

Chautauqua County

Company	Well No.	Location	Depth	Init. Prod.
Griffeth et al	1	NEc SE 2-32-10 E	1998-2019	¾M

Cowley County

Company	Well No.	Location	Depth	Init. Prod.
Knox Dlg.	1	Lot-7, Blk-44, 22-32-4 E	2286-2350	15

Elk County

Company	Well No.	Location	Depth	Init. Prod.
Jones et al	6	NWc SW 23-31-10 E	1642-1657	20
Denman et al	1	SEc 35-31-10 E	1997-2005	1M
Pennock	1	CNL SE SW 30-30-11 E	T.D. 1621	Dry

Greenwood County

Company	Well No.	Location	Depth	Init. Prod.
Empire	1	SEc NW SW 10-25-13 E	T.D. 1614	Dry
Theta	3	SEc SW SE 23-22-12 E	1659-1731	225
Empire	2	NEc NW NE 26-22-12 E	1652-1680	50
Darby	4	NWc SW NW 30-22-13 E	1695-1745	300

Labette County

Company	Well No.	Location	Depth	Init. Prod.
Ark River	1	SWc 26-32-17 E	T.D. 1304	Dry
Noble	1	NWc SW NW 1-32-20 E	T.D. 820	Dry
Lilly et al	1	SWc 33-32-20 E	T.D. 820	Dry
Wantland et al	1	SEc NW SW 5-35-20 E	T.D. 1106	Dry

Logan County

Company	Well No.	Location	Depth	Init. Prod.
Coon et al	1	NWc NE NW 14-14-33 W	T.D. 3855 OWD	Dry

Marion County

Company	Well No.	Location	Depth	Init. Prod.
Harwood et al	1	SWc SE SW 2-17-4 E	2348-2449	25

Montgomery County

Company	Well No.	Location	Depth	Init. Prod.
Voise et al	1	NEc 35-33-16 E	595-600	.5M
Tex-C-Kan	1	NWc NE NE 12-35-16 E	1196-1204	200
Ramler et al	1	CNL NE NE 31-31-14 E	T.D. 1750	Dry
Bloom et al	1	SEc NW NE 35-32-16 E	T.D. 1250	Dry
Earl et al	1	SEc NE SW 29-32-17 E	T.D. 1396	Dry

Sumner County

Company	Well No.	Location	Depth	Init. Prod.
Globe et al	1	NWc NE 24-31-2 E	T.D. 2165	Dry
Edenfield et al	1	MVRW 14-32-2 E	T.D. 2128	Dry
Roxana	2	Outlot-9, 14-32-2 E	2001-2090	586
Roxana	1	SEc NE SW 14-32-2 E	1248-1261	75
Roxana	6	NWc NE NW SE 14-32-2 E	1978-2098	247

west to the failure. The shot, 40 quarts, was fired at 6,175-6,237 feet and bridged.

The Oxford pool of Sumner county, Kans., which is partly a townsite proposition, keeps growing and the extension well of the Barnsdall Oil Co., in the NEcNW of 23-32S-2E, which came in several weeks ago for 400 barrels per day natural, was boosted with a shot of 114 quarts from 2,038-94 feet, after which it was deepened to 2,138 feet. It is now flowing 90 barrels per hour. It is to the south of the townsite.

Completions in N. E. Central, West, Panhandle and North Texas, Week Ended January 21, 1928

NORTH AND EAST CENTRAL TEXAS

Brown County

Company	Well Farm	Location Survey	Depth	Init. Prod.
Cranfill et al	20-Smith	SA&MG	1338-1349	50
Wheelock et al	6-Smith	SA&MG	1332-1337	10
West Texas Land	1-Gawthney	Harris	1485-1471	25
Panuco Exp	1-Shipman	Durr	1300-1360	1M
Senior	1-Baker	White	T.D. 1550	Dry
Blanchard et al	1-Kisler	H&TB	T.D. 1346	Dry
Osage	1-Mixon	H&TB	T.D. 1957	Dry
Selby	24-Ellis	SA&MG	T.D. 1370	Dry
Wentz	1-Robertson	SA&MG	T.D. 1470	Dry
Wheelock et al	8-Smith	SA&MG	T.D. 1340	Dry
Dozier	1-Carson	Wilson	T.D. 1600	Dry
Curtis	1-Fuller	Neil	T.D. 1030	Dry

Callahan County

Gibson et al	6-Neuman	TE&L	T.D. 407	Dry
Mook et al	3-Baum	Vigal	1668-1684	40

Cherokee County

Humble	1-Elliott	Windsor	T.D. 4346	Dry

Coleman County

Eastland et al	2-Morris	Webber	2100-2103	320
Scarborough	1-Will	Hale	T.D. 1265	Dry

Eastland County

Corzellius et al	1-Elliott	Robinson	T.D. 1735	Dry
Gulf Prod	1-Fox	McLennan	1597-1602	60

Freestone County

Orbit	1-Coleman	Howard	T.D. 3464	Dry

Limestone County

Transcontinental	1-Ward	Varella	2873-2883	125

McCulloch County

Hoby	1-Hoby	Vauhmar	T.D. 1970	Dry

Runnells County

Noble	1-Simms	McHenry	T.D. 3506	Dry

Throckmorton County

Falls Prod	4-Graham	TE&L	1814-1819	15

Young County

Roxana	4-Payne	Smith	2063-2130	40

NORTH TEXAS

Archer County

Wright et al	3-Wilson	Scott	1078-1080	10
Panhandle et al	2-Farmer	N A R	1430-1538	98
Panhandle	1-Gravey	TE&L	764-772	85
Hines et al	1-Helm	Taylor	T.D. 1513	Dry
The Texas	1-Gravey	JCSL	T.D. 1203	Dry
Sun	1-Green	Levin	T.D. 1232	Dry
Consolidated et al	1-Roach	McCramey	T.D. 1101	Dry

Cooke County

Carey et al	2-Walterschied	MT	1382-1396	3½

Montague County

Sinclair	1-Dennis	Robertson	T.D. 2006	Dry
Dickey	1-Ditto	TCSL	T.D. 2300	Dry

Wichita County

Company	Well Farm	Location Survey	Depth	Init. Prod.
Vergate	2-Deep	Watkins	852-858	71

Wilbarger County

Phillips	12-Waggoner	H&TC	2396-2403	14
Fain et al	2-Waggoner	H&TC	2284-2299	107
Consolidated et al	1-Anderson	H&TC	T.D. 2403	Dry

PANHANDLE

Carson County

Gulf Prod	17-Burnett	H&GN	T.D. 3189	Dry
Willis et al	1-Burnett	I&GN	3010-3192	5M
Stubblefield et al	1-Cooper	I&GN	3092-3122	107

Gray County

Texas	1-Brown	I&GN	3340-3630	29
Wilcox	6-Worley et al.	I&GN	3175-3177	5
Wilcox	2-Worley	I&GN	T.D. 3047	Dry
Danciger et al	4-Jackson	H&GN	2990-2995	240
Gibson	2-Bowers	H&GN	2990-3177	800
Pollard et al	1-Bowers	H&GN	T.D. 3208	63
Riley et al	1-Hopkins	H&GN	3006-3303	25
Texas	1-Chapman	H&GN	2819-2821	591

Hutchinson County

McMan	3-Cockrell	D&SE	T.D. 440	Dry

WEST TEXAS

Crane County

Pecos	15-Univ.	Unvi.	2800-2965	225
Gulf Prod	45-McElroy	CCSD	2795-2900	437

Crockett County

Jones	1-Powell	GC&SF	2600-2634	100
Osage	1-Halff	I&GN	1050-1052	220
Cerbitt et al	1-Univ.	Univ.	T.D. 2502	Dry

Pecos County

Mid-Kansas et al	18-Yates	I&GN	T.D. 1108	Dry
Kirby et al	1-Harral	GC&SF	T.D. 3001	Dry
Gulf Prod	5-Yates	Runnels	1257-1412	480
Roxana	7-Tippet	TC	1127-1278	490
Gulf Prod	7-Yates	Runnels	T.D. 1075	940
California	5-Smith	TC	1500-1648	270
Roxana	4-Smith	TC	1647-1704	216
California	7-Smith	TC	1145-1290	350
Gulf Prod	3-Smith	TC	1491-1688	265
Allsman et al	5-State	Pecos River Bed	928-935	200

Winkler County

Roxana	1-Hendricks	PSL	2800-2828	4237 & 30M
Gulf Prod	3-Hendricks	PSL	2825-2950	800
Gulf Prod	4-Hendricks	PSL	2882-2882	2180
Gulf Prod	5-Hendricks	PSL	2765-2880	1425 & 30M
Gulf Prod	6-Hendricks	PSL	2635-2895	1363 & 15M
Humble	1-Hendricks	PSL	2856-2927	3400
Texon	1-Hendricks	PSL	2812-2942	4300 & 40M
Southern Crude	88-Hendricks	PSL	2805-2992	1360 & 15M

Marland Prepares to Test 6608 Ft. Well at Seal Beach

Staff Special
LOS ANGELES, Jan. 20

MARLAND OIL CO. was preparing to test its McGrath-Selover 16 in the Alamitos Heights area of the Seal Beach field, with bottom of hole at 6,608 feet in a shell formation, after penetrating 559 feet of formation, 75 per cent of which is a good oil sand with some gas indicated. References have been made in previous issue of NATIONAL PETROLEUM NEWS to the presence of this deeper sand.

The new sand will be known as the McGrath, and is between 500 and 1000 feet below the Wasem. There are 91 producing wells in the Alamitos Heights area, but it is extremely doubtful if more than 40 are in condition that will permit deeper drilling.

Marland has reached a total depth of 6,600 feet in its McGrath—Selover 11, another deepening job, and will go a few feet deeper before preparing for a production test. Marland has killed McGrath-Selover 10, 12, 13 and 19 and they are being drilled deeper for the new sand. Richfield Oil Co. also has a well on its Bonner lease in the same area that has reached a total depth of 6,460 feet, with a string of 5¾-inch cemented through perforations at 6,290 feet. This well is also due for a production test in the next day or so.

The new wells at Rincon are not coming up to expectations, due to the small amount of oil sand penetrated. On Wednesday, three wells were on production making a total of 540 barrels.

At Long Beach, four new wells were completed in the deep sand during week ended Jan. 16, and one well has been completed since that time. The four wells averaged close to 2000 barrels each, but regardless, declines in old wells combined with loss of production from wells taken off to be drilled deeper, will about offset the new production. Nine wells are standing cemented and will be ready for production tests in the next few days. A check of the field early of this week indicated 175 active projects. Of this total, 19 holes were drilling below 5500 feet, 21 were drilling between 5000 and 5500 feet and 22 were drilling between 4500 and 5000 feet.

Associated Oil Co. is having trouble with its Cypress 1 at Potrero, the next new field in Los Angeles basin. This well was once on production, but was deepened for another test. Bottom of hole is now at 5,408 feet, and the first swabbing test was with an open hole from 5,283 feet to bottom. Bridges formed as fast as they could be cleaned out, and now they are running in a perforated liner, but are having trouble in reaching bottom. Associated has made location for Cypress 2 about 800 feet west of No. 1, and should be drilling next week. Pan American has taken over an old lease and started drilling Connolly 1 late last week. One other project is reported to be getting

New Field Operations in Oklahoma, Kansas, North Central, Panhandle and West Texas, Week Ended January 21, 1928

OKLAHOMA

Creek County

Company	Well-Farm	Location
Riverland	1-Marshall	SWc SE SE 31-14-9
Winmiller	1-DeeNun	SEc NW 4-17-11
Irelan et al	1-Thomas	SWc SE NW 13-17-10 OWD
Chief Drlg	1-Brown	SEc 1-17-10
Hemlock	1-Thomason	NWc NE SW 35-18-10
Shaffer	16-Tiger	SEc NW SW NW 17-17-7 E

Grady County

Carter	1-White Eagle	NWc NE SW 27-3-5 W OWD
Magnolia	1-Purley	SEc SW NW 8-4-6 W
Texas	2-Glover	NEc SW NW 13-4-8 W
Okla. Gas Utilities	2-Wood	NEc NW 2-4-8 W
Meridian	4-Farwell	NEc SE 23-5-8 W

Kay County

Harris et al	2-Tickle	NEc SE 25-29-1 W
Harris et al	2-Hobough	SWc 30-29-1 E

Lincoln County

Wilcox	1-Skeets	NEc 15-15-5 E

Muskogee County

Star Develop	2-Morris	NEc SE 20-15-15 E
Williams	1-Daniel	SWc SE SW 8-15-17 E

Okmulgee County

Misener	4-Kershaw	SWc SE SE NW 11-13-14 E
Eagle Picher Z	1-Conner	SEc SW 4-12-14 E
Wallace	6-Colbert	CWL NW SE 14-14-14-E
Stansbury et al	14-Harrison	SWc NW SE 25-15-14 E
McBraver et al	2-Tucker	SWc NW 9-15-14 E
Sun Ray	1-Cooper	NEc NW 36-16-13 E OWD

Osage County

Kennedy	2-	SEc SW SW 29-20-12 E
Kay County	1-B	C NW SE 22-24-7 E
Kay County	2-A	C SW NE 22-24-7 E
Marland	4-	SEc NE SE 27-25-9
Peters	3-	NEc NW SW 26-25-9

Pawnee County

Mowry et al	1-Rogers	SWc NW 15-21-7 E
Steen	1-Oliver	SWc NE 5-20-7 E
Turner et al	2-Smelzer	NWc SW SW NW 29-20-9 E

Pottawatomie County

Gypsy	2-Cecil	NWc SW NE 19-7-4 E
Amerada	1-Harjo	SWc SE NE 1-8-4 E

Seminole County

Gypsy	2-Renton	NEc 11-7-6 E
Pine	1-Hoyecha	SEc SW SE 26-8-6 E
Gypsy	1-Henderson	NWc NE NE 13-8-6 OWD
Magnolia	5-Rhoades	SWc NE SW 12-8-6
Twin State	7-Barker	SEc NE NE 12-9-5

Stephens County

Owen-Wood	9-Massey	SWc SE NW 12-2-8 W
Touhy et al	2-Edwards	SWc SE SE 3-3-5 W

Tulsa County

Holmes et al	1-Ragan	SEc NE SE 22-19-10
Davis	2-Perry	NEc SE NW 21-19-12

Wagoner County

Striker	2-Prince	NEc SW SW 29-18-16 E
Deems	10-Sarty	SWc NE SW 31-18-15 E
Elk Drlg	1-Norfer	NEc NE 23-18-15 E

KANSAS

Butler County

Davis et al	4-Lewis	SWc 3-27-6 E
Rosenthal et al	10-Shaffer	SEc 4-27-6 E

Cowley County

Parker Drlg	1-Fry	NWc 30-31-3 E
Lewis	1-Buck	SWc NW 5-32-5 E

Greenwood County

Swartz et al	1-Spencer	SWc 28-22-11 E
Theta	4-Fankhouser	SWc SE 23-22-12 E
Darby	6-Fankhouser	NWc SW SW 24-22-12 E
Darby	5-Schwab	NEc SW NW 30-22-13 E
Carnes et al	1-Smith	NWc SE 4-24-13 E
Gilliland et al	1-Burton	CEL SE SE 9-25-13 E
McCullough et al	1-Lanes	SWc NW SE 10-25-13 E
Rogers et al	1-Brown	NEc 3-26-10 E

Marion County

Cress et al	1-Costetes	NWc NE SE SE 15-17-4 E
Braden et al	1-Smith	NEc 22-17-4 E
Ramsey et al	1-Bolby	SWc NE NE NE 22-17-4 E
Lariaux et al	1-Fowler	SWc NW NW 23-17-4 E
Phillips	1-Mower	NEc SW NE NE 22-17-4 E
Lariaux et al	1-Merilatt	SEc NW NW 23-17-4 E
Lariaux et al	1-School lot	SWc NW NW NW 23-17-4 E
Phillips	1-Peterson	NEc NW SW NW 23-17-4 E
Reynolds et al	1-Wettrourer	SWc NW NW 23-17-4 E

Sumner County

Washahoma	1-Bussard	NEc SE NE SE 22-32-2 E
Ramsey et al	1-Caldwell	CE½ NE NE 22-32-2 E
Smith et al	1-Barnes	NWc NE SW 23-32-2 E
Marland	1-Veail	NEc 27-32-2 E
Balph et al	1-Bowman	NEc SE 13-35-2 E

Woodson County

Lamar et al	1-Paeske	SWc 25-25-13 E

TEXAS

WEST TEXAS AND PANHANDLE

Crane County

Company	Well-Farm	Location	Survey
Gulf Prod	11-Lassater	NE NW SW Sec-35, Blk-30	Univ.

Crockett County

Osage	2-Halff	Sec-7, Blk-1	I&GN
Humble	2-Sarg	SWc Sec-61, Blk-BB	GCSF
Dixie	1-Thompson	SWc Sec-72, Blk-1	I&GN

Culberson County

Hickey et al	1-Finley	C NE NW Sec-20, Blk-82	P.S.L.

El Paso County

Ellsworth et al	1-McKinney	Cen. of Sec-17, Blk-6	P.S.L.

Gray County

Majestic	4-Bowers	Sec-92, Blk-B-2	H&GN
Phillips	3-Riley	SWc Sec-88, Blk-B-2	H&GN
Briggs et al	1-Morse	SWc Sec-3, Blk-26	H&GN
Danciger et al	1-Chapman	SWc NW Sec-7, Blk-26	H&GN

Pecos County

Allsman et al	10-Riverbed	Sec-61, Blk-1	I&GN
Allsman et al	9-Riverbed	200 ft. from No. 10 Well	
Allsman et al	6-Riverbed	300 ft. from No. 5 well	
California	11-Smith	Sec-35, Blk-194	GC&SF
California	12-Yates	C Sec-33, in Sec-34, Blk-194	GC&SF
Phillips	1-Smith	Sec-39, Blk-194	GC&SF
Elmore	2-Holmes	Sec-45, Blk-1	I&GN
Sun	1-Yates	NEc Sec-59, Blk-1	I&GN

Terrell County

Deep Rock	1-Noelke	SEc Sec-4, Blk-A-2	TCRR

Winkler County

Republic Prod	4-Hendricks	NEc SW Sec-45, Blk-26	PSL
Southern Purchasing	67-	NW NE SE Sec-44, Blk-26	P.S.L.
Southern Purchasing	88-Hendricks	SW SE NE Sec-44, Blk-26	P.S.L.
Turman et al	7-	SW NE NE Sec-29, Blk-B-5	PSL
Southern Purchasing	88-Hendricks	NWc SW Sec-28, Blk-B-5	PSL

NORTH AND NORTH CENTRAL TEXAS

Archer County

Texas	1-Garvey	Blk-73	JCSL
Wilson	1-Can	Blk-1	EL
Panhandle et al	3-Farmer		NAR
Panhandle et al	4-Farmer		NAR
Wilson	4-Farmer		NAR

Brown County

Adams et al	1-Lowe		Baker
Scrivnor et al	1-Turner	Blk-651	Graham
Lloyd	1-Collier	Blk-139	Smith
Mitcham	1-Keller	Blk-624	Kenney
Natural Gas & Fuel	2-Capps	Blk-18	Hunt
Natural Gas & Fuel	1-Ray	Blk-20	Ford
Hammond et al	1-Mathews	Sec-9	HT&B
Forest	1-Brooks	Blk-350	Hernametez
Adams et al	1-Lowe		Baker
Atlantic Prod	1-Fuller	Blk-43	T&NO
Cranfill et al	1-Nichols		Easley
Cranfill et al	1-Newton	Blk-623	

Callahan County

Mook et al	5-Baum		Vigal

Eastland County

Independent	1-Snider	Sec-46	Lavaca Co. Schln
Chestnut-Smith	1-Duffer	Sec-5, Blk-2	McLennon Co. Schln

Coleman County

Daniels et al	1-Moody	Sec-9, Blk-665	Scott
Eastland et al	1-Morris	Blk-722	Webber
Eastland	3-Morris	Blk-722	Webber

Shackleford County

Simmons et al	3-Harvey	Blk-14, Sec-5	T&P

Limestone County

Hicks et al	1-Richardson		Bridgeman

Montague County

Bridwell et al	1-Howard		Robertson

Wichita County

Hobbs	1-Hodge	Blk-39	WFVL

Wilbarger County

Texas	345-Waggoner	Sec-33, Blk-4	H&TC
Kolp et al	1-Waggoner	Sec-8, Blk-4	H&TC
Phillips et al	1-Waggoner	Sec-47, Blk-2	H&TC

Young County

Robert	5-Keen	Sec-3401	TE&L
Ridgeway	1-Water	Sec-165	TE&L

ready to go into an old well, which was given up as dry some months ago.

Pacific Eastern Production Co. (Gulf interests) is preparing to test its Fruitvale well in the next few days. This well lies a short distance west of the Bakersfield city limits and bottom of hole is at 3,851 feet, with casing landed above the oil showing. Reports are that the oil sand penetrated looks promising and many expect a producer. Pacific Eastern has built a steel rig for its No. 2 hole south of Bakersfield and drilling contract was let to Bell & Little. Well No. 1 is in bad shape and probably will be abandoned, although a good oil sand was penetrated and the well flowed over the top several times. The well would have been on production some weeks ago, if so much trouble had not been encountered.

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Anti-Knock Value of Un-Doped Fuels Revealed by Tests

Staff Special
TULSA, Jan. 23

EVIDENCE of the growing anti-knock value of un-doped gasolines being produced in modern refineries is found in results of tests made last fall at the meeting of the American Oil Men's Association at West Baden, Ind. Dr. G. G. Brown of the University of Michigan, head of the research department of the Natural Gasoline Association of America, has just issued a summary discussing tests of 45 motor fuels submitted at the convention.

Of the 45 fuels tested at the meeting 21 were submitted by refiners and 24 by distributors. No fuels submitted for testing had a benzol value of less than 10 and there were only nine samples with a benzol value of less than 25, according to Dr. Brown's report. The highest benzol equivalent was 50 and 13 samples showed an equivalent of 40 or above. There were 23 fuels tested which showed benzol equivalents between 25 and 40.

None of the 13 gasolines testing 40 or above contained any metallic dopes. "These results clearly indicate that fuels possessing relatively high anti-knock value are not difficult to obtain at the present time and that there are a number of sources of such fuels available to the industry," Dr. Brown said.

"Differences in volatility and engine performance of the various fuels were even greater than the differences in anti-knock value," the report continues. "One fuel was submitted which would not accelerate the four-cylinder motor in a satisfactory manner even when the motor was operating at such a high temperature that the water leaving the block was over 200 Fahr. This fuel had less than 40 per cent distilled over on the A. S. T. M. distillation test at 300 Fahr. The curve was convex upward from an initial of 96 to an end point of 450 Fahr.

"The distillation of this fuel showed only 96 per cent recovery in spite of the high end point, indicating that the fuel contained a considerable quantity of dissolved gases. These were probably absorbed in the cracking process as the fuel was straight cracked gasoline.

"Other fuels tested showed just as great a recovery as the cracked gasoline mentioned but had 40 per cent distilled over at 200 to 215 Fahr. and about 70 to 75 per cent at 300 Fahr. These fuels showed better acceleration on the cold motor with the water out of the cylinder head at a temperature below 100 Fahr. than did the fuel of low effective volatility on a hot motor with the water coming out of the block at 200 Fahr."

From his volatility tests Dr. Brown concludes that the industry is not as fully aware of the importance and relationship of proper volatility to engine performance as it is to anti-knock value. He asserts in his summary of the tests that as a matter of fact there is a greater difference in engine performance due to differences in effective volatility than to differences in anti-knock value.

The industry still considers the initial boiling point of a fuel as an index to easy starting. Dr. Brown points out that as a matter of fact "at least 5 per cent and preferably 10 to 15 per cent should be considered in estimating the ease of starting. Good acceleration and smooth engine performance are indicated by the middle part of the distillation curve from 40 to 65 or 70 per cent. The end point seems to be the least important point on the curve while the initial, if too low, might indicate trouble due to a high vapor pressure or dissolved gases.

"There is a definite indication that motor fuel is now being marketed and sold at a premium upon its real merits as indicated by anti-knock value and volatility rather than the misleading criteria of gravity, color, doctor sweet reaction and end point. Although gravity and end point are still used in the purchase of motor fuel by the jobbing trade, it is interesting to note that premium gasolines are sold almost entirely upon the basis of anti-knock value or high partial volatility. It seems that this peculiar situation of the distributor buying the fuel on the basis of gravity and end point and selling it to the public on an entirely different basis of anti-knock value and partial volatility must soon right itself."

The anti-knock tests at West Baden were made by comparing engine results using blends of straight run Pennsylvania gasoline of federal specifications and pure benzol against the samples submitted. A small single cylinder marine type motor having a compression ratio of about 7 to 1 was used in connection with a dynamometer.

Hancock Refining Moves Office

LOS ANGELES, Jan. 20.—The sales office of the Hancock Refining Co., whose plant is located at Long Beach, has moved from the Bartlett building, Los Angeles, to 723 Petroleum Securities building, Los Angeles, effective Jan. 16.

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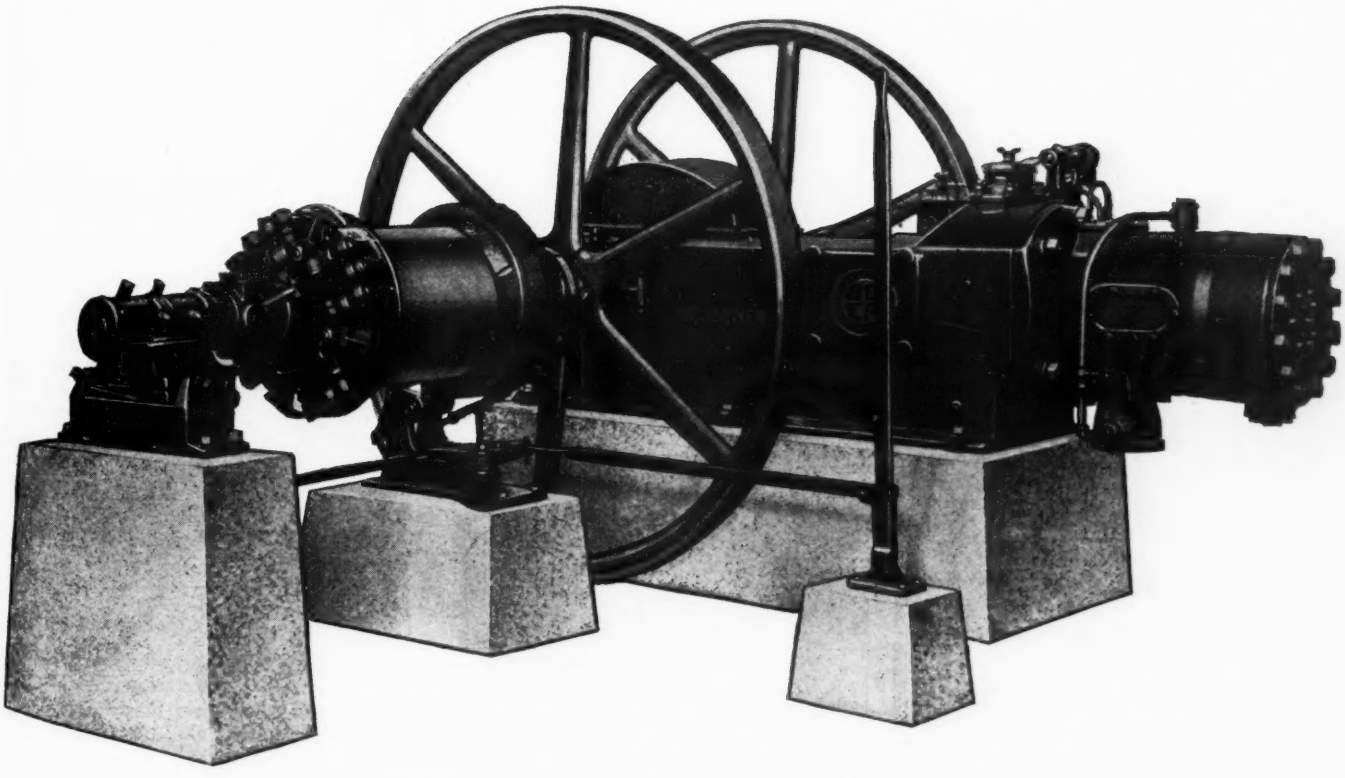

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Airey Replies to Statement By Standard of New York

CLEVELAND, Jan. 23

THREAT to carry its fight against the Standard Oil Co. of New York to every country in which the Standard attempts to market Russian oil, is contained in a reply of the Royal Dutch-Shell to the public statement issued by the Standard of New York a week ago in which it charged the Royal Dutch-Shell with inaugurating a price war in India as a retaliatory measure against the Standard for selling kerosene in that British possession which it had bought from the Soviet government. The Royal Dutch-Shell reply was issued by Richard Airey, head of the group's interests in the United States. The Airey statement follows:

"The Standard Oil Co. of New York statement that they are making a loss in India of $4,000,000 per annum, owing to substituting Russian oil for American oil is a big penalty to pay for lack of foresight. The negotiations which they mention as having been carried on continuously from May to December, 1926, inclusive, had two objects: Firstly, to obtain compensation for the former owners of the Russian oil lands, which had been confiscated without compensation by the Soviet government. Secondly, to prevent a demoralized market.

"If these negotiations had been successful the oil would have been shared with other companies and so insure a steady market. The question of compensation for the former owners was being seriously entertained but the action of the Standard Oil Co. of New York prevented its success as by their purchases relief was given to the Russian Soviet and they no longer had any reason to consider provision for the former owners. So long as the Standard Oil Co. of New York was marketing American oil in India things went along as usual, but with the importation of Russian oil, which is described by Sir Henri Deterding as 'stolen goods', to substitute American oil, the Royal Dutch-Shell group decided to try and prevent it being marketed and will continue to do so.

"I do not anticipate a price war in any other country but this is entirely in the hands of the Standard Oil Co. of New York. If they ship Russian 'stolen goods' to any other country, the Royal Dutch-Shell group will fight it."

Cincinnati Men Bag Duck in Tennessee

CINCINNATI, Jan. 14. — Enough ducks for a duck dinner at the January meeting of the Cincinnati Oil club were brought back from a hunting trip in Tennessee by three oil men.

Part of the bag is pictured above with A. B. Caldwell, of Caldwell & Taylor Co., Cincinnati, to the left; "Ham" Hamilton, Reelfoot Lake Guide, in the center; and J. D. Chandler, salesman of Caldwell & Taylor, on the right. W. C. Storey, Cincinnati representative of the American Oil Pump & Tank Co., took the picture.

Mr. Storey reports that in addition to the obtaining the game limit on ducks, Mr. Caldwell brought down a 15-pound Canadian goose. The party was hunting at Reelfoot Lake, Tennessee.

A. B. CALDWELL, "HAM" HAMILTON, AND J. D. CHANDLER

Thomson Made Chief Surgeon

SAN FRANCISCO, Jan. 24.—Dr. H. S. Thomson, who has been district surgeon at San Francisco for the Standard Oil Co. of California, has just been appointed chief surgeon, succeeding Dr. L. P. Howe, who recently resigned.

Dr. Thomson has been a practicing physician here since his return from the war during which period he was chief surgeon at the base hospital at Royat, France. He was up to the time of his new appointment, assistant clinical professor of surgery at the University of California and assistant visiting surgeon for the San Francisco city hospital.

Mexico to Drop to Fourth Place in World Oil Production in 1928

By Valentin R. Garfias* and R. V. Whetsel*

THE Mexican production for 1927 was approximately 64,200,000 barrels, or nearly equal to that of 1918, when Mexico replaced Russia as the world's second largest producer. The 1927 figures show a decrease of 26,000,000 barrels, this being the third successive year that the decline of production has averaged approximately 25,000,000 barrels. This steady downward trend allowed Russia to outrank Mexico for second and Venezuela to tie or pass Mexico for the third position.

The relation of development to production is significant; during 1918, when only 48 wells were completed, the production was practically the same as in 1927, when 583 wells were drilled to completion; the only remedy to this situation being the discovery of new fields.

No extensive drilling activity or construction programs were undertaken in 1927, the year being a period of "marking time" and a continuation of attempts for the government and the industry to adjust the complicated situation confronting them. The close of the year was marked by the fortunate appointment of Dwight Morrow as American ambassador and the visit of Col. Lindbergh to Mexico City. These events and the subsequent modification of the petroleum law, being significantly encouraging.

Development

A TOTAL of 583 wells were completed during 1927, compared to 808 during the previous year, the curtailment being indirectly due to the rapid depletion of old fields which discouraged intensive drilling, and also to artificial causes related to pending legislation.

The following table summarizes development:

	Failures	Producers	Total
NORTHERN FIELD			
Panuco	60	11	71
Topila Caracol	38	11	49
Chapacao Corcovado	82	49	131
Salinas	56	13	69
Cacalilao	90	25	115
Limon	23	3	26
Altamira	21	3	24
Quebracha	10	1	11
	380	116	496
SOUTHERN FIELD			
Dos Bocas Alamo Fault	38	18	56
Isthmus of Tehuantepec	7	17	24
Wildcats	6	1	7
Grand total	431	152	583

There were only 496 completions made compared to 708 during 1926, the percentage of producers in the Northern field falling from 40 per cent in 1926 to 24 per cent for 1927. Early in the year the completion of a 30,000 barrel well near Salinas, 12 kilometers east of the Chapacao field at Méndez, on the railroad right-of-way, started very active drilling operations which continued until October; oil was encountered below the water level of the older fields to the west, and salt water invaded the new area during the first month of production.

Results in the Altamira district, which was discovered the previous year, were discouraging, as only three very small producers were encountered out of 24 wells completed. The discovery gusher being reduced to a poor "stripper". Results of drilling in the two outlying districts of Quebracha and Limón were also discouraging, and towards the end of the year no favorable extensions of the heavy oil district were in sight.

The percentage of producing wells obtained in the Southern field along the Dos Bocas-Alamo fault line fell from 50 per cent in 1926 to 32 per cent in 1927, and the old pools new producing wells were soon reduced to small "strippers" because of salt water invasion. Two wells were completed in the Laguna de Tamiahua, one of which struck the Tamasopo limestone and the other which encountered flowing salt water at a very shallow depth. This indicated a northern extension of the Dos Bocas-Alamo structure, but the results discouraged further efforts to test this possible extension.

Efforts to find the southern extension of the famous "Knife Edge" were more successful. Early in the year a well was completed for 2,000 barrels in San Isidro, 12 kilometers southeast of Alamo, which indicated a sharp swing of the structure to the east. During the last half of the year 6 wells were completed in Paso Real between San Isidro and Alamo, all of which were producers, the largest being rated at 10,000 barrels. These wells which are shallower than the old Alamo producers have already established a well defined southern extension of the "Knife-Edge", which should encourage more extensive development.

During 1927 there was less wildcatting in Mexico than at any time during the last ten years. The most interesting completion being near Camargo in Northern Tamaulipas, on what might be an extension of the Texas fields. The well encountered a small gas and oil flow, but was abandoned as non-commercial at 3,605 feet. The Ohio Mex. Oil Corp. completed a dry hole in Central Coahuila near San Marcos, and toward the end of the year had started a second well in Northern Coahuila near Zambrano.

Drilling activities in the proven areas of Isthmus of Tehuatepec region were fairly successful during the year. In the proven area of Filisola, 17 producers were brought in out of 24 wells drilled, which increased the daily production of the area from 4,000 to 8,000 barrels.

Production

THE following table gives a comparison of production of 1927 with that of the previous year:

	1926	1927	Decrease
Northern fields (12° Be.)	58,000,000	38,900,000	19,100,000
Southern fields (21° Be.)	31,000,000	22,600,000	8,400,000
Isthmus of Tehuantepec (32° Be.)	1,300,000	2,700,000	1,400,000
	90,300,000	64,200,000	26,100,000

The production in the Northern fields which increased from 120,000

*Foreign Oil Department, Henry L. Doherty Co.

1928 Estimates

TOTAL estimated output from Mexico in 1928 is placed at 50,000,000 barrels by Messrs. Garfias and Whetsel, authors of the accompanying article. This is 14,000,000 barrels less than 1927. The decline is expected to take place practically entirely in the Northern field.

Amount of wildcatting was less at beginning of 1928 than of 1927 the authors report in their article and it is not anticipated exploration will open new territory sufficient to change the downward trend of production.

Messrs. Garfias and Whetsel, as a year ago, have selected NATIONAL PETROLEUM NEWS for the exclusive publication of their review of development in Mexican oil fields in 1927.

Modern Refiners are gathering their vapors

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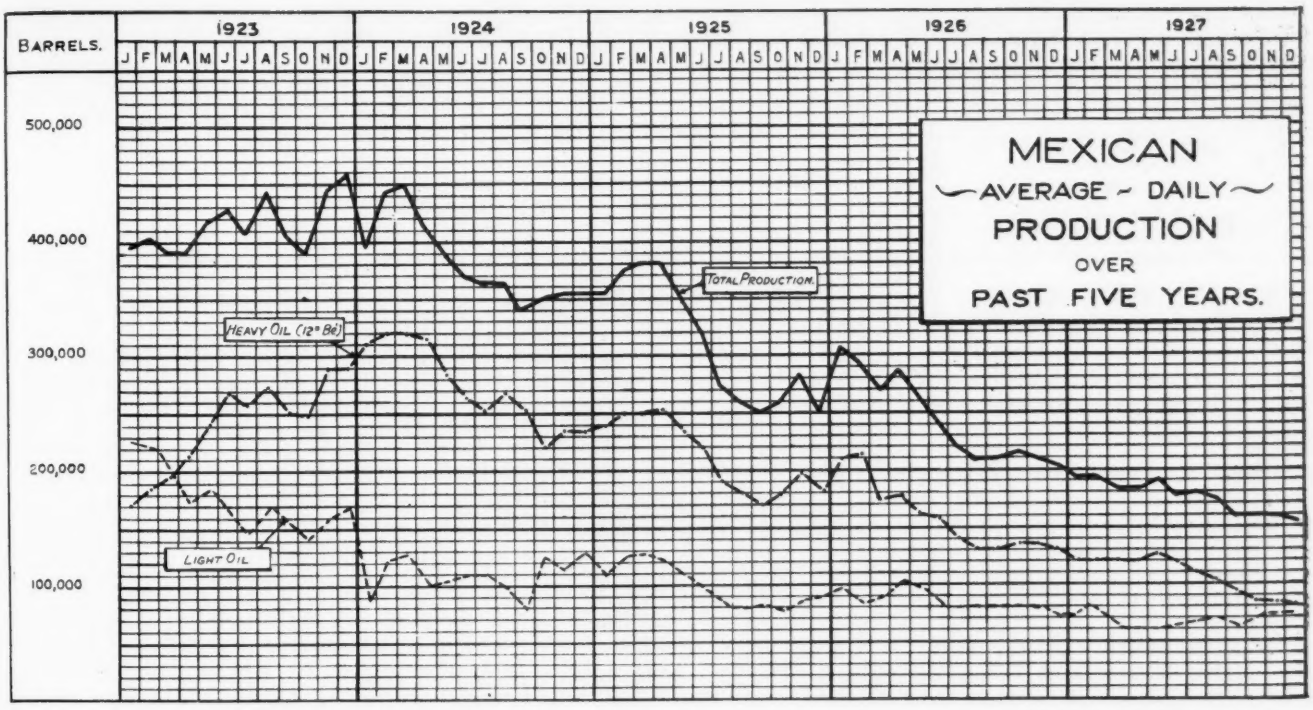


barrels daily in January to 126,000 in May due to the new Salinas production declined to 81,000 barrels at the end of the year due to water invasion in Salinas and the steady decline of the other areas. In the Northern fields during December 1926 a total of 564 wells were producing a daily average of 128,000 barrels, or an average of 227 barrels per well, while in December of 1927 a total of 664 wells were producing a daily average of 81,000 barrels, or an average of only 122 barrels per well.

The production in the Southern fields declined from 71,000 barrels daily in January to 58,000 barrels in September. During October the new wells in Paso Real on the extension of the Dos Bocas-Alamo structure were producing, and by the end of the year light oil production was again up to 71,000 barrels daily with a rising trend. Production in the older pools from Tierra Blanca to Cerro Azul declined steadily.

Production in the Filisola field in Tehuantepec increased as a result of several successful wells completed the first six months of the year. The daily average increased from approximately 4,800 barrels in January to 8,200 barrels in August. Toward the end of the year the daily average had settled to approximately 7,000 barrels.

Oil in Storage

ACTUAL figures of oil stocks in Mexico were not available at the end of the year, but estimates from consumption, exports and production show that total withdrawals in 1927 aggregated approximately 2,500,000 barrels. At the end of the year oil in storage in Mexico had reached the lowest point in ten years.

The following table shows the oil stock in grades on Jan. 1, 1927, and the estimated storage on Jan. 1, 1928:

MEXICAN OIL STOCKS
(U. S. Barrels)

	Jan. 1st, 1927	Jan. 1st, 1928
Heavy crude (12° Be.)	6,200,000	4,750,000
Fuel oil (17° Be.)	5,200,000	4,300,000
Light crude (21° Be.)	2,360,000	2,450,000
Refined products	1,200,000	1,000,000
Total	14,960,000	12,500,000

Mexican government reports show that in 1926 there were 2,171 steel tanks with a total capacity of approximately 60,000,000 barrels. This figure includes many terminals and stations that have been abandoned, and it is probable that steel tanks now in condition to receive oil do not total a capacity of 30,000,000 barrels.

Domestic Consumption and Refining

DOMESTIC consumption for 1927 is estimated to be about 15,000,000 barrels, or practically the same as in previous years of which approximately 10,000,000 barrels went to interior consumption and the balance for local field use.

Based on the distribution of domestic consumption for the previous years, an estimation of domestic consumption by grades for 1927 is given in the following table:

	Local, Field and Operation Consumption	Railroad, Auto and Interior Consumption	Total
	(In U. S. Barrels)		
Light Crude	300,000	50,000	350,000
Heavy Crude	2,000,000	5,000,000	7,000,000
Gasoline	50,000	850,000	900,000
Kerosene	30,000	250,000	280,000
Gas Oil	900,000	150,000	1,050,000
Fuel Oil	1,300,000	3,400,000	4,700,000
Lubricants	10,000	90,000	100,000
Other Products	410,000	210,000	620,000
	5,000,000	10,000,000	15,000,000

Oil refined in Mexico during 1927 was 10,000,000 barrels less than the previous year, or approximately 32,000,000 barrels. The year saw the closing of the last of the topping plants, which leaves only two large refineries and one small unit operating in Tampico. The refinery at Minatitlán, State of Vera Cruz, continued to operate on the increased production of light oil in that district.

There was a marked increase in the asphalt output and in the refining of Venezuelan light crudes in local plants. Practically all the light crude produced in Mexico was run through Mexican refineries.

Following is an estimate of the amount of crudes run through refineries during the year:

Oil Refined	U. S. Barrels
Heavy Crude	5,700,000
Light Crude	22,100,000
Imported Venezuelan Crude	4,500,000
	32,300,000

Refined products may be roughly divided as follows:

Fuel Oil (17° Be.)	22,000,000
Distillates and other refined products	9,300,000
Losses, etc.	1,000,000
	32,300,000

Imports

DURING the year one of the major companies engaged in the refining of oil in Mexico and producing in Venezuela, imported 4,660,000 barrels of Venezuelan crude for refining purposes. During the first six months these imports amounted to several hundred thousand barrels per month, but toward the end of the year they almost ceased probably due to the substitution of new light crude production for refining purposes, coming from the southern extension of the Dos Bocas-Alamo fault.

Exports

EXPORTS during 1927 decreased in proportion to production, totaling approximately 52,400,000 barrels, or 29,000,000 barrels less than

the previous year. Light crude shipments were less than 100,000 barrels. Heavy crude exports decreased 11,000,000 barrels, and fuel oil shipments were only one-half of the 1926 exports, or 16,500,000 barrels. Distillate shipments decreased 2,500,000 barrels. On the other hand, the manufacture and shipment of asphalt increased to almost 2,000,000 barrels, most of which went to European ports.

Exports by grades for 1927 were approximately as follows:

	U. S. Barrels
Heavy Crude (12° Be.)	26,700,000
Fuel Oil 17° Be.	16,600,000
Light Crude (21° Be.)	100,000
Distillates	4,100,000
Asphalt	1,900,000
Bunkers	3,000,000
	52,400,000

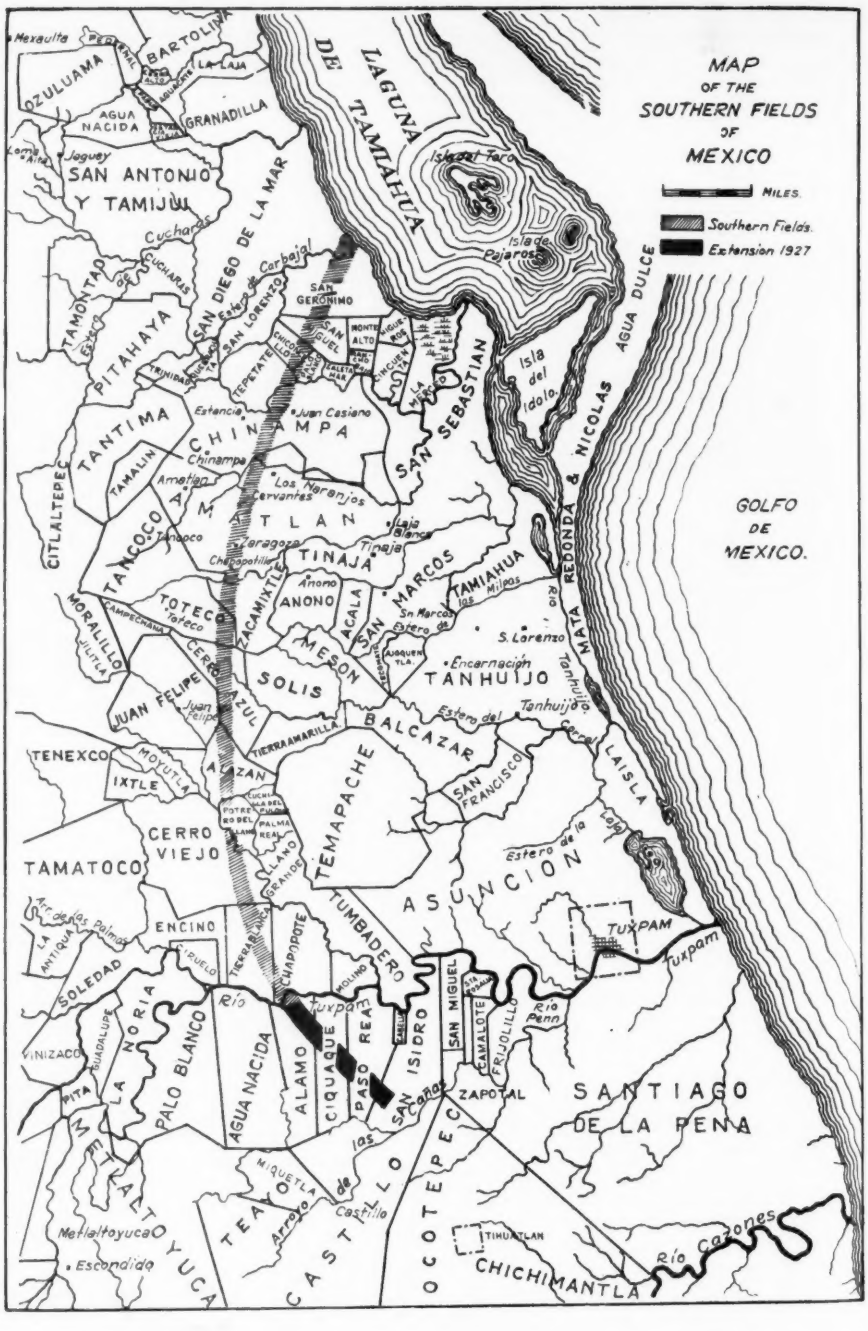
Shipments to the United States amounted to approximately 37,000,000 barrels, or about 70 per cent of the total exports, while during 1926 shipments to the United States totaled 54,000,000, or 66 per cent of the total. Shipments to Cuba, West Indies and South American ports were considerably lower than in 1926, while shipments to Europe, especially refined products, were about 30 per cent greater than in 1926.

The year saw the abandonment of the sea-loading terminals on the Panuco river, owned by The Texas Co., the East coast and the Standard terminal at La Barra. At the close of the year there were only ten deep water loading terminals in commission at Tampico.

Market Conditions

THE beginning of 1927 saw a rising market in Panuco crude (12° Be.) caused largely by the unusual demand for this grade of oil by Atlantic seaboard refineries for the manufacture of asphalt products. By April the price had reached a new peak price of $1.40 U. S. Cy. f.o.b. ship Tampico. Shortly afterward, however, the influence of the general oil situation in the United States, accompanied by the regular seasonal depression in prices lowered Mexican heavy crude price to $1.07 f.o.b. ship. Toward the end of the year the price of spot cargoes for this grade of crude had not risen in accordance with the usual seasonal trend of Panuco crude prices notwithstanding the fast declining production of this grade of oil.

In the Southern fields, or light oil district, the Huasteca and Aguila companies were practically the sole buyers and transporters of this grade of crude. The new production in Paso Real, as well as small independent production to the north, was purchased by these companies. At the beginning of the year this oil was selling above $1.00 per barrel at the well, but in December small independent producers could not obtain over 60 cents a barrel. The price for this grade of crude (21° Be.) is now well below the prices offered for the heavy Panuco grade (12° Be.) in the Northern fields.



The Mexican domestic market for fuel oil and refined products continued to be controlled by two major companies operating refineries in Mexico; toward the end of the year, however, an independent Mexican company started to import gasoline in tank cars from California, and had succeeded in causing very serious competition in Mexico City and other interior cities. For a period of a few months the National Railways were able to supply their own needs from the production of their wells at Salinas, but toward the end of the year they were again forced to purchase part of their needs from outside producers.

Taxes

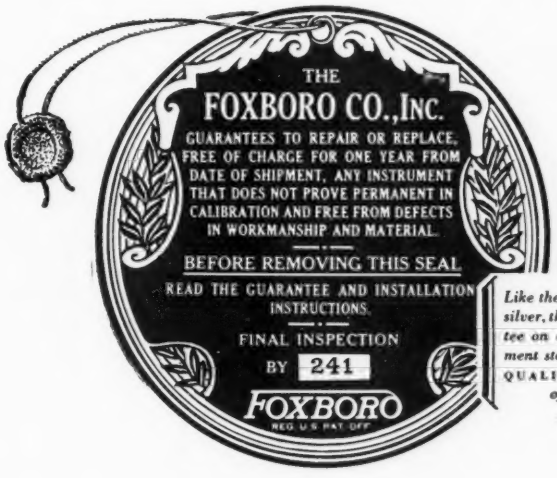
The following table gives the variation of rates of taxation on oils exported:

Mexican Oil Taxes in U. S. Currency per Bbl.

	Dec., 1926	Oct., 1927
Heavy Crude (12° Be.)	17.5	17.0
Fuel Oil (17° Be.)	28.0	25.0
Light crude (21° Be.)	30	29.0
Distillates (ave. 56° Be.)	57.5	50.0

These taxes being based on the prices of oil, are considerably lower for October 1927 than for December 1926. The above figures do not include minor taxes, which combined approximate 2 cents a barrel. Mexican government revenues from production and export taxes for January 1927 were 1,914,000 pesos, compared to 1,007,000 pesos for October of the same year.

Effective Aug. 15, 1927, personal income tax payments affecting wages, salaries, etc., were increased under a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federal amendment to the income tax law. In addition to the basic increase, exemptions formerly given to these taxpayers were no longer allowed.

The following examples give the new scale of taxes payable per month on each monthly income:

Monthly salary U. S. Cy.	Tax per Month U. S. Cy.
85.00	0.30
100.00	2.05
300.00	5.17
500.00	11.07
1,000.00	29.85
1,500.00	55.77
2,000.00	92.01
2,500.00	132.02

At the end of the year new taxes on rentals and royalties of oil lands were being considered. The tax to landowners of oil land on these two sources of income is now ten per cent.

Outlook for 1928

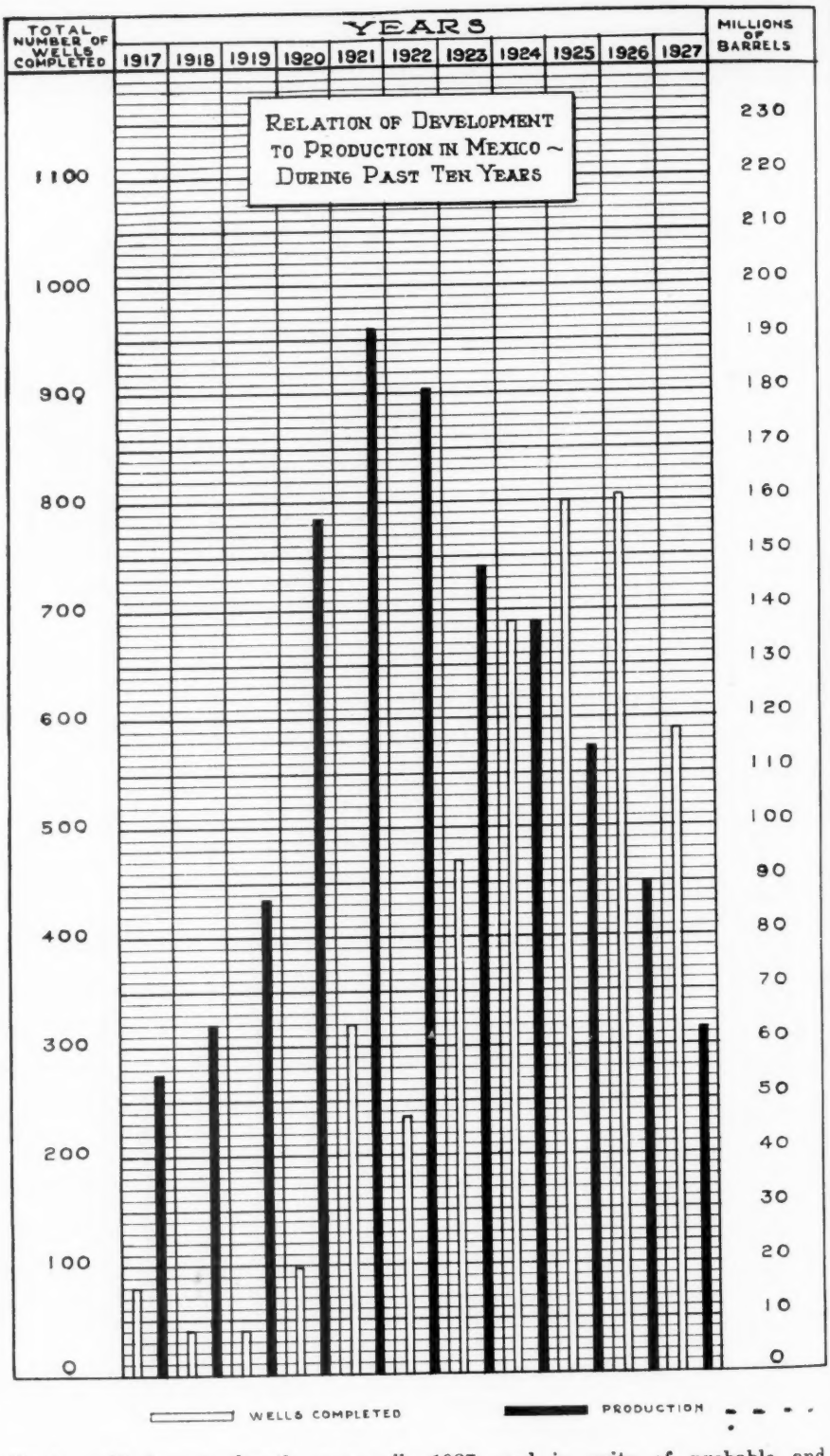
BY THE end of 1927 only 31 wells were drilling in the Northern fields, compared to 71 wells at the close of 1926 while in the Southern fields only 9 wells were drilling and only two were under way in unproven territory that could be called "wildcats". This is the lowest stage that drilling in Mexico has reached in several years.

The probable extension of the Dos Bocas-Alamo fault, southeast of Alamo, will probably result in increased activity in this section during 1928. The territory is largely controlled, however, by two major companies holding large blocks which will permit conservative development.

It is estimated that production from this extension will hold the South field light oil production during 1928 to within a few million barrels of the output of this grade of Mexican crude during the previous year. The yield of the Northern fields is now on a settled basis at the rate of slightly over 120 barrels per day per well, and the downward trend of the output in these fields can be expected to be more gradual during 1928.

Any estimate of production from Mexican fields for a year in advance is hazardous, and the reader must be cautioned that such estimating has for basis the past producing history of the fields and the present status of development and production, as well as the general conditions influencing them. With such limitations in mind, it is estimated that production in Mexico for 1928 will be about 14,000,000 barrels less than in 1927. Practically all of this decline is estimated to take place in the Northern fields where the gradual downward trend is expected to continue throughout the year. The production for heavy oil for 1928 is estimated at 25,000,000 barrels, and some 23,000,000 barrels for the light crude. Production of the Isthmus of Tehuantepec light crude is estimated to be about 2,000,000 barrels, bringing the total estimated production of Mexico for 1928 to approximately 50,000,000 barrels.

Under these conditions during 1928 Mexico will drop to fourth as an oil producing country. It is not improbable that before the end of 1928 the light oil production in Mexico will, for the first time since the early part of 1923, rise above that of the heavy crude oil output.



The above estimates, with the exception of the extension southeast of Alamo, do not take into account the possibility of the discovery of new pools which may produce wells of large initial yield. The amount of so-called "wild cats" exploring new territory at the beginning of 1928, was less than at the beginning of 1927, and in spite of probable and satisfactory early settlement of pending questions related to the Mexican petroleum legislation, it is not expected that the exploration of new territory during 1928, which may influence future production, will be sufficient to materially change the downward trend of production during the present year.

TULSA, Jan. 21.—I. L. Dunn, of the engineering firm Dunn & Lewis, is convalescing from an operation, in his old home at Marietta, Ohio.

Little Resentment Shown by Merchants Against Oil Men's Premiums

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, Jan. 21

LITTLE resentment against such competition has been shown by merchants of Ohio and Michigan cities and villages where cushions and other articles have been sold at a low price by oil companies to attract trade to their service stations. Only one company of eight that have used trade pullers in the last year, has admitted that complaint has been made against such methods.

Merchants' boards or associations in eight Ohio and Michigan cities have given no thought to the oil companies' activities in putting out cushions, flashlights, automobile robes, steamer rugs, camp kits, and other articles not akin to the oil and gasoline business but which may be used in an automobile. These articles were offered for an amount of cash sufficiently large to cover the wholesale price of the article, its transportation and handling costs, and sometimes a small profit, when the customer presented five or ten coupons which were given the customer with each purchase of five gallons of gasoline or its cash equivalent of oil or other commodities the oil company stocked.

The one complaint mentioned was made, the manager of the oil company said, not so much against his particular effort to increase his trade but against the premium proposition in general. The complainant, it developed, had suffered from the competition of a merchandising organization that used several hundred premiums. This complainant was only a small user of gasoline. So far as oil companies have been able to ascertain they have lost no large commercial business because a merchant resented their selling cushions or other articles, managers of eight companies have told NATIONAL PETROLEUM NEWS.

Oil companies seem to have escaped the ire that fell on newspapers in this part of the country several years ago when the papers gave away articles of every description from tincups to automobiles to get circulation. Many of the household articles were given away for a few coupons clipped from the newspaper's issues for a week or longer. These articles competed directly with the goods of merchants whose advertising the newspapers sought. Naturally there was ill feeling when the merchant's advertisement offered an article at a price appearing alongside the paper's own advertisement which offered the same article or something similar to it for a few coupons.

HOWEVER, the oil companies have not followed in the footsteps of the newspapers. Oil companies have sold their premiums for a cash price that exceeded the wholesale price and handling costs.

J. S. Shaw, a furniture merchant of Toledo, whose store is only five or six blocks from two service stations where premiums were on sale, was in a position to determine the effect, if any, that cushions would have on his sales. Most of the traffic that passed his store passed one or the other of the service stations.

"I didn't know cushions were being sold at those stations," he told the writer. "That sort of cushion belongs in the automobile and I think the service station is a proper place for them to be sold. We don't care what they offer in the way of premiums. We sell things that are not strictly in the furniture line. Every spring we put on a sale of lawn mowers. No one gets sore at us, so why should we get sore at the oil companies.

"Only a few weeks ago we sold 300 cushions in less than a week. (This sale was at a time when the oil company was selling cushions a few blocks away.) We didn't have any trouble moving them. The customers came so fast we had to put an extra girl on selling them."

Mr. Shaw said there was no "regular cushion trade." The department stores usually deal in specials in regard to cushions or their decorating specialists have cushions made to fit the individual customer's decorative scheme.

He said he believed most of the cushions the oil companies sold went to people who would not otherwise have bought cushions. The same might be said of many of the other articles. Some persons bought robes because the price was comparatively low but if they had to go to a store they would never have spent the money because with closed cars they really did not need them.

ONE Ohio oil company manager said the merchants had a chance to take on the cushions before the oil companies and it was up to them to move them in quantities, a thing which they did not do. This oil man, who is an aggressive marketer, said his company was selling a lot of flashlights but that it would not sell replacement batteries. He said this attitude was really a help to the dealers in flashlight cells because the oil company was increasing use of flashlights much faster than if the accessory, hardware or the corner variety stores, still called drug stores, had sold them.

The secretary of an Ohio retail merchants' board said his organization was divided about premiums but because some of them gave trading stamps the board had never acted against premiums or trade pullers except in the case of the daily newspapers.

Experiences of oil companies with trade pullers are still being related wherever marketers that have used this method to attract customers and others who are interested in the subject, meet.

A company in an Ohio city of

What Will Happen When Premiums Compete?

ARTICLES about the use of premiums or trade pullers appeared in the Dec. 7, and Dec. 28, 1927, issues of NATIONAL PETROLEUM NEWS. In the first article was told the volume in which cushions, which seem to be the most successful trade puller to date, were sold for an amount of cash that exceeded the purchase and handling costs, and five coupons given with the purchase of oil and gasoline. In the second article the experiences of some of the principal users of trade pullers were related. The present article deals with reactions of merchants and merchant boards to the use of trade pullers, reactions that have not yet taken an unfriendly turn.

There is another question to be answered in connection with trade pullers but time has not yet developed the answer and only time can give the answer. The question is, "What will happen when several distributors in a community offer premiums to lure more oil and gasoline customers?" When the answer develops, NATIONAL PETROLEUM NEWS will tell what it is.

Arrested!

You do *not* pay the fine when your flames are arrested. You pay when they are not—you pay thousands of dollars in loss of tanks and contents.

A small investment in Oceco Flame Arrestors will insure you against all fines in the future.

They have never failed to stop flames yet—and over 65,000,000 barrels of tankage are thus protected.

For what size tanks may we send you details and prices of fittings?

THE OIL CONSERVATION ENGINEERING COMPANY

877 Addison Road Cleveland, Ohio

about 100,000 population reported varying success with pillows, robes and blankets. When the pillows first appeared they "took the town by storm", the company's manager said. Then the football season came with a local high school team of unusual merit. Cushions made in the high school colors caused cushion sales to spurt. Then came cold weather and the Christmas season. In certain neighborhoods, those inhabited by mechanics and clerks, the sale of cushions continued good. Evidently they were wanted for gifts for friends that did not live in that city. After Christmas the sales slumped although gasoline customers continued to collect the coupons.

In the same city robes and blankets went slowly in the neighborhoods just mentioned. In the neighborhoods where family income was larger, the sale of blankets and robes during the first cold snap of the winter outstripped the sale of cushions. One man bought three robes at $5 each. He already had bought 16 cushions. A woman, from last summer until Jan. 1, had bought 20 cushions and one robe. The cushions she used mostly at a summer home on a nearby lake.

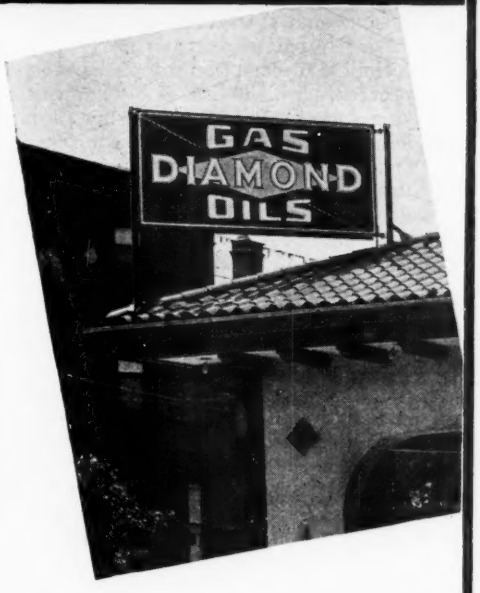
Another company in another city sold between 15,000 and 20,000 cushions at its stations. When winter came it stocked fine automobile robes as well as the mohair and velour variety that sold for around $5 and 10 coupons. The robes this company put in sold from $3.50 to $25 and 10 coupons. Of course the market for the expensive robes was in the wealthy neighborhoods or at stations frequented by business and professional men.

The manager of another company said he noticed no change in gallonage after his company offered the cushions. He said his regular trade had been built up and was being held by little jobs of free service by the station men. He said he had noticed no great change in gallonage after the demand for cushions slumped.

Andrews-Bradshaw, Blaw-Knox Merge

PITTSBURGH, Jan. 20. — The merger of the Andrews-Bradshaw Co. of Pittsburgh, with the Blaw-Knox Co. has been announced. The Andrews-Bradshaw Co.'s principal product is known is the Tracyfier, a device for thoroughly cleaning steam, gas, air and vapor—and is being widely used in boiler plants, refineries, gas plants, etc.

No change in the organization of the Andrews-Bradshaw Co. is contemplated, with the exception that the products of this company will be manufactured in the main plant of the Blaw-Knox Co. at Blawnox, Penn. The Andrews-Bradshaw Co. will operate as the Andrews-Bradshaw division of the Blaw-Knox Co.



Gas Buyers Look for Signs

CAN they *spot* your station from blocks away?.... in time to notice and think *"there's* the place to get gas and oil"?

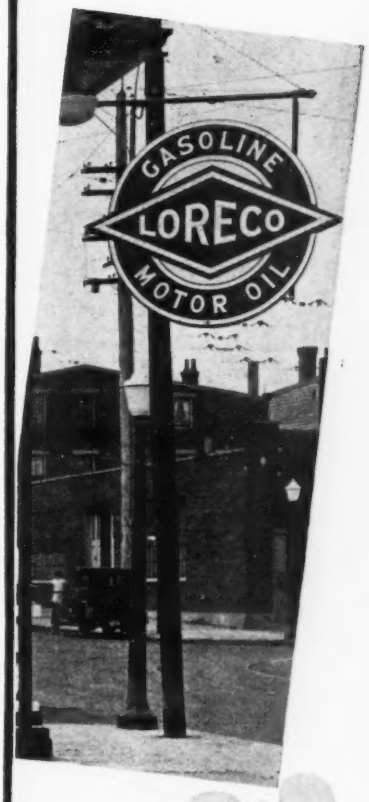
If not, then you are losing sales you can begin at once to win. For a Flexlume Electric, up and out where traffic from both directions cannot overlook its prominent appeal, will draw many, many new customers—*by day*, because of striking beauty and dominance; *by night*, because of brilliant electric lighted words.

The moderate investment in a Flexlume is soon balanced by the profits from increased gallonage sold; then for years it will continue its unmatched advertising-earning power. Let us send you the facts about Flexlume's high productiveness at low cost and a color sketch, free, of a Flexlume adapted to your needs. Address the FLEXLUME CORPORATION, Buffalo, N. Y., or use the coupon.

Sales and Service offices in all chief cities of U. S. and Can.

FLEXLUME

Factories also at Detroit, Los Angeles, Oakland and Toronto



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1767 Military Road, Buffalo, N. Y.

Please send us facts about electrical advertising and free color sketch of a Flexlume Display for our filling stations.

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City & State.....

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"A better job than ever before!"

THAT is how the Superintendent of one oil concern described Oakite performance in removing two coats of paint from one of his gasoline truck tanks. But what pleased him still more was a saving of approximately $5.00 in material and nearly 1 day in time over the method formerly employed.

If you, too, have been using costly paint and varnish removers to strip paint from trucks, tanks, tank cars, or drums you can effect similar savings through the use of Oakite materials for this work. An interesting booklet, sent free on request, tells how.

Oakite Service Men, cleaning specialists, are located in the leading industrial centers of the U. S. and Canada.

Oakite is manufactured only by

OAKITE PRODUCTS, INC.
42C Thames St., New York, N. Y.

OAKITE
Industrial Cleaning Materials and Methods

A
Tret-O-lite
Plant
is NOT expensive

Operators usually can arrange a Tret-O-litE plant, using equipment already on the lease. No heavy initial investment—no expensive equipment to stand idle when need for large treating capacity has passed.

The Tret-O-litE method is the fast, economical and THOROUGH method of recovering oil from emulsions.

WM. S. BARNICKEL & COMPANY
St. Louis, Mo.

Tret-O-lite

Anglo-Persian Experiments In Cracking Natural Gas

EXPERIMENTAL work in the Anglo-Persian Oil Co. is carrying on in the Maidan i Naftun oil field in Persia, in the pyrolysis, of cracking of natural gas, to obtain by-products of commercial importance, is described in "In a Persian Oil Field," by J. W. Williamson, B. Cs., secretary of the British Scientific Instrument Research Assoc. The book is printed by Ernest Benn. Ltd., London publishers, and is only recently off the press.

The Anglo-Persian company has done a great amount of development work of all kinds in the territory in Iraq and Persia, which extends from Naft Khaneh, 50 miles or so northeast of Baghdad, in northeast Iraq, some 400 miles to Gach Qaraguli, in southwest Persia, about 100 miles east of Abadan, a port on the Persian Gulf. The principal field is the Maidan i Naftun field, nearly 200 miles northeast of Abadan.

Some 32,000,000 cubic feet of gas produced daily in this field, with around 100,000 barrels of oil, was being burned late in 1926 when the author visited the field. At that time 10,000,000 cubic feet was being treated in an absorption plant, yielding 20,000 gallons of natural gasoline. The author states that plans were then being made to increase the capacity of the absorption plant to 30,000,000 gallons a day.

Practice in American oil fields is followed in the method of recovery of gasoline from the gas, the author states. "But the high pressure separators and the flow tanks used were specially designed by a member of the company's staff, and the adoption of rotary compressors represents an advance on American practice, in which reciprocating pumps are generally employed," he goes on to say.

"The difficulties arising out of the exceptionally high sulfuretted hydrogen content of the gas have also called for much special investigation by the company's scientific staff and for consequent modifications in the gas absorption process."

With regard to the experimental work in extraction of commercial by-products from natural gas, this being new in the experience of most American oil companies, the book says.

"We have not yet, however, come to the end of the gas story. Part of the gas which has passed through the absorption plant and given up its gasoline now goes to another plant, called—it is said, not very happily—the pyrolysis plant, where attempts are being made, and on a semi-large scale have been completely successful, to obtain other products of industrial value.

"It is outside the scope of this essay, and it would try unduly the reader's patience, to enter upon a technical description of the pyrolysis process, which is also known as "cracking." Broadly speaking, it may be said that the process consists essentially in subjecting the gas under pressure to high temperatures, in order that the lightest fractions of the gas may combine to form valuable liquid products, of which benzol in particular may be mentioned.

"When the writer visited the fields the pyrolysis plant was not in full working order on the commercial scale, but was in the intermediate development stage through which all the discoveries of the research department have to pass before they can be translated to full-scale industrial practice. Both at fields and at the central research laboratories of the company at Sunbury-on-Thames, systematic researches on this problem have been and are being prosecuted and are nearing, if they have not already reached, practical fruition.

"The gasoline and the benzol thus obtained do not, however, exhaust the list of useful products recoverable from the waste gas.

"IN THE first place, this gas contains a quantity of hydrogen sulfide which may amount to as much as 10 per cent. The hydrogen sulfide itself is a most undesirable constituent, as it has a very unpleasant smell and is highly poisonous.

"It is for that reason that the high pressure gas is purified before being distributed for domestic and industrial use as fuel. Chemical processes have, however, been devised whereby from the hydrogen sulfide there can be obtained sulfur of an extraordinary degree of purity; and it will soon be possible thus to rid the gas of a noxious constituent and to provide in commercial quantity, not only pure sulfur, but sulfur compounds such as carbon bisulfide, all of which are of great value and of wide use in medicine, industry and the arts.

"Again, any natural gas, if burnt against a cold metal, or other suitable surface, deposits carbon in the form of an extremely fine, black soot—carbon black—which is much superior to ordinary lampblack as a pigment for the manufacture of printer's ink. Since a 1000 cubic feet of gas yield from 1 to 2 pounds of carbon black and it is calculated that 1 pound of carbon black suffices to print 2,250 copies of a 16-page news-

paper, the potentialities of the Fields gas in this direction alone—whether beneficient or deplorable, the reader must decide—are obvious. Carbon black is also largely used in the rubber industry, being incorporated into the rubber in order to give to it the toughness, elasticity and durability sought after by motor tyre manufacturers.

"Considerable quantities are also used in the manufacture of stove polishes, Chinese and Indian ink, paper and tarpaulins. Already at Fields a small plant has been established and started for the manufacture of this widely useful by-product.

"By varying the conditions of carbonizing the gas it is also possible to get the carbon in the form, not of soft black soot, but of a very hard, greyish black solid of close grain, which, on account of its exceptional purity, is of great value for electric arc lamps and for other electrical purposes.

"Nor does the tale of useful products obtainable from the gas end here. The gas consists of several, chemically distinct, gases, known generically as hydro-carbons, among which methane and butane may be mentioned. It is possible to separate these constituents by appropriate physical means and to use each one as a raw material for the preparation of other chemical compounds of industrial importance. Thus, by treatment with chlorine, the methane can be converted into chloroform and the butane into butyl chloride and thence into butyl alcohol, which is largely used as a valuable solvent for cellulose lacquer.

"Indeed the gas and the whole of the petroleum, taken together, constitute a potential raw material for a stupendous chemical industry, as great as, and possibly greater than, the combined synthetic dye and drug industries which have grown out of the once under-value coal tar. Ten years ago, to take another example, the research chemists of the Anglo-Persian Oil Company showed that the high explosive, trinitrotoluol (T. N. T.), originally produced from coal tar, could be obtained from Persian, Borneo and other petroleums and large quantities of this explosive were so made during the war.

"The laboratory researches and the semi-large scale investigations on the preparation from the gas of all these and other industrial by-products have been brought to the point, or nearly to the point, when large scale commercial production can begin."

WASHINGTON, Jan. 21.—The oil shales of Indiana are discussed in the January issue of the "Mining Congress Journal," by Ralph Esarey, of the geology department of the University of Indiana. He tells of their physical characteristics, quarry conditions, chemical composition, and oil content.

A diamond mark and a square offer

Backing up the Diamond mark which identifies a Jenkins Valve stands a square offer, which has for years afforded engineers a guarantee of valve performance.

The Jenkins Fair offer reads as follows: "If you will put a Jenkins Valve on the worst place you can find, where you cannot keep other valves tight, and if it is not perfectly tight, or does not hold steam, oils, acids, water, or other fluids, longer than any other valve, *you may return it and your money will be refunded.*"

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524 Atlantic Avenue..... Boston, Mass.
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Better Color

Stable color comes from the contact process.

Yet the success of this process hinged on the success of filtering.

Sweetland Pressure Filters met the test.

Today, more than one hundred refineries have installed this process and the Sweetland Filters that go with it.

In ordering filters for this work, order new ones—and let us tell you why it is better to do so.

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The Editors' Viewpoint

You Get What You Order Here

Guard Your Car Against Bootleg Oil

79 PER CENT FRAUD SHOWN IN OIL TEST
CLAIMS DEALERS SUBSTITUTE FAKE AUTO LUBRICANTS
Guilty Dealer Is Denounced From Bench
Stiff Jail Sentence
Many New York Oil Stations Gyp Autoists?
Motor Oil Bootlegger Draw
STATES TO CURB FRAUDULENT MOTOR OIL SERVICE STATIONS
SUBSTITUTE OILS SOLD, REPORT SAYS IS NATION-WIDE
Automobile Clubs Are Asked to Aid in Suppressi
SALE OF INFERIOR OIL IS GROWING
PROTECT BUYERS FROM POOR OILS
First Conviction Secured in New York Oil Fraud Crusade
STATES ACT TO PROTECT MOTORIST FROM OIL FRAU
POPULAR SCIENCE MONTHLY
It Ruins Your CAR and Costs You MONE
Bootleg OIL
How unscrupulous dealers sell you inferior substitutes, endangering your car and even your life—Ways you can protect yourself
By Myron M. Stearns
What Poor Oil Does to Your Car
Bootleg Oil Graft
Fair Trade Association Wars on 'Gyp' Oil Deal
DETROIT IS NAMED IN OIL FRAU
BOOTLEGGING IN OIL LAID 4 AGENTS
TRADE BODY ASKS MOTOR CLUBS FOR AID
OIL FRAUDS DECREASE IN DETROIT
PUBLIC VICTIM OF BOOTLEG OIL
MOTOR OIL FRAUDS EASILY COMBATED
"POOR LUBRICANTS DESTROY ENGINES
BOOTLEG OIL BILL PASSED BY ALDERMEN
MORE ARRESTS IN OIL CASES
INFERIOR MOTOR OILS ARE FOUND
War Against 'Bootleg' Oil
ASSERTS AUTOISTS NEED PROTECTION
LAW PROTECTS AGAINST FRAUDS IN MOTOR OILS
STATE LEGISLATURE ASK CURB FRAUD MOTOR
OIL SUBSTITUTION COMMON, MASSON REPORT REVEALS
League Says New Law Will Help Oil Bu
Gyp' Oil Dealer Gets Heavy Fine
DEALER FOR SELLING "BOOTLEG" MOTOR OIL
Drive Against Gyp Oil Dealers
Fair Trade Associat Wars On 'Gyp'
Guilty Dealer Is Denounced From Benc
JUDGE SCORES SALE OF CHEAP OILS FOR GOO
JUDGE LOSS TO TO OWNERS IS REPORTED
START WARFARE ON SUBSTITUTE ON MOTOR OIL
PROTECTION FOR MOTORISTS URG
NATION-WIDE DRIVE AGAINST OIL FRAUDS
Los Angeles Sunday Times
SUNDAY MORNING
SUBSTITUTE OILS SOLD, REPORT SAYS IS NATION-WIDE
MOTORISTS WA ON BOOTLEG
Sells 'Bootleg' Oil, Gets Three Months
Fight Spreads on Motor Oil Fraud
Trade Association Drives Substitute Dealers Out of Detroit—Conditions Improving Also in the New York Area
Bootleg Oil Dealer
Springfield, Mass. Union Feb. 13, 1927

From Associated Fair Trade Association 11 West 42nd Street, New York

Fair(?) Trade Association Issues Slanderous Posters to Service Stations

NOW comes the American Fair (?) Trade Association of New York distributing to some oil companies posters of the articles with its misleading, and non-truthful statements regarding the oil industry of which the above is a fair sample and which it has issued for the past two years.

A copy of the poster was sent us by Vernon Adams, general manager of the Adams Oil Co., Coleman, Texas, who wrote:

"Enclosed is a poster that is self explanatory.

"Knowing your position on this kind of propaganda, we are mailing it to you. We received about fifty (50) copies of this. The idea of course was to have us give each of our dealers copies of this to display at their stations, which, of course, we did not do.

"We make no comment on this poster except to say that it looks utterly uncalled for to us and we are opposed to such radical literature even if justified, which it is not."

As NATIONAL PETROLEUM NEWS has pointed out time and time again, the American Fair (?) Trade Association, so-called, has issued practically nothing that is true about the oil industry. What had a measure of truth in it, was misleading. All that the American Fair (?) Trade League has done, has been to the discredit of the oil industry as a whole.

The above poster is not only untrue and unfair to the oil industry, but it is the poorest type of salesmanship.

Who can walk up to a stranger and say "Pardon me, but that man over there is a crook. I am honest," and expect the stranger to believe you.

All products should be sold by sound salesmanship, with sound argument and honest statements and not by slander—W. C. P.

The Holmes-Manley *Cracking* Process

Flexibility of Operation.

High Yield of Quality Gasoline direct from the Unit.

Fractionation and Condensation under Full Operating Pressure.

High Yield of Liquid Products with a minimum yield of fixed gas and carbon.

Low yield of Residue Fuel Oil of good Quality.

Relatively low Operating Temperatures.

Ease of Control.

Long Runs and High percentage of Operating Time.

Low Labor and Fuel Costs.

Address Inquiries to

THE TEXAS COMPANY

W. S. S. RODGERS

17 Battery Place, New York, N. Y.

Branch Office

816 Palace Building, Tulsa, Okla.

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

Kentucky Refinery to Start Up Again

JFRED MILES of Lexington, Ky., organizer in 1917 of the Swiss Oil Corp., bought the Louisville Petroleum Refining Co., of Louisville a few months ago and has it nearly ready to start operations.

The refinery, which consists of a double unit Dubbs cracking plant with Winkler Koch fractionating towers, has a capacity of 3,500 barrels a day. It was built several years ago by Col. E. H. Hilpp and associates and has been shut down for some time.

Mr. Miles, James C. Ellis, of Owensboro, Ky., and others, have built a pipe line from the Ohio county field, to the Ohio river at Owensboro. Oil will be brought by the pipe line to Owensboro and from there will be transported in steel barges to the refinery.

Charles A. Jouett, formerly superintendent of the Great Southern refinery at Pryse, Ky., and of the Ashland Refining Co., Ashland, Ky., and previously with The Texas Co., and Empire Refineries Inc., is general superintendent and H. R. Smith will have charge of traffic and sales. The report was that Mr. Miles had bought the Great Southern Refining Co. from Texas Co., but he says the deal has nothing to do with either of these companies.

Mr. Miles says he has been operating in Kentucky for 12 years and in Oklahoma 15 years before that.

Patents as a Source of Revenue

OWNERSHIP of patents in the refining business is a thing of important money-making possibilities, as is shown by the article in another part of this paper showing that members of the Patent Club collected $30,000,000 in royalties in 11 years. That takes no account of the Dubbs and Jenkins and Conerty and Fleming process units that are running. Dubbs, very likely, has had the greatest revenue of any of them from royalties.

There is another factor in the situation too that has led practically every important refining company to build up more or less of a patent department and that is the difficulty of taking any forward steps in any phase of the business without running into somebody's patent. It seems that agreements between refining companies owning large numbers of patents, are becoming more and more necessary if they are to make any progress at all in development and research.

Prior Art as a Defense

I WONDER, before all the cracking patent fights are finally settled by the courts, if somebody won't come forward in an infringement suit with the defense that his process is built on the drawings and specifications of some old patent, antedating all of present ruling batch of patents.

If Special Master Martindale is right in his report in the case of the government against the Patent Club, this defense could not be made to stick because no commercial process using heat and pressure, according to his opinion, could have been developed without infringing at some point some of the patents owned by the Patent Club.

I wonder whether this is actually the case. I believe it could be shown that a plant built directly on the specifications of some of the old patents would work sufficiently well to demonstrate that later patents didn't cover anything really new in the process. In all the infringement suit trials I have seen, the defense has been either that the patent said to be infringed was no good because anticipated by the prior art or else that the process and apparatus of the defendant was different from those named in the patent said to be infringed.

Selling the Squeal in Cracking Plants

AS MARKET conditions continue to make it harder to show a profit on selling refinery products, disposal of the by-products of the cracking stills becomes a more serious problem and a more necessary one to solve. Some refineries find a good market for the coke and even the fixed gas from their cracking stills, others cannot so easily do so. It is largely a matter of local conditions.

One refiner has contracted to supply the heavy tar from his cracking stills, full of suspended carbon, to a manufacturing plant. By special handling he is able to deliver this stuff to the plant, which is near the refinery, and the plant is able to burn it. One condition of the contract is that the refiner must keep at all times in the tanks at the industrial plant, a supply of clean 24-26 fuel oil to be used in case something goes wrong with the burning of the heavy stuff.

Ingenuity and teamwork by the operating men of the refinery and the industrial plant make possible the burning of this fuel at an advantage to both buyer and seller, the heavy sticky fuel being sold at a price that makes the cost far below that of coal firing and still helping the refiner to show a profit on his operations.

Patenting the Laws of Nature

"WE TURN out engineers from this school, trained not only in the laws of physics and mechanics but also trained in how to think and how to use their ingenuity. They go out into the world and get a job and if they are enterprising, they presently find that most of these laws of physics and mechanics have been patented and they are enjoined by patents from practicing their profession."

This is the substance of what a professor of engineering in a well known school said to me the other day. If this is a fair statement of the case it would seem that the purpose for which the patent office was founded, that is, to encourage ingenuity and inventive ability by protecting their fruits, has been entirely reversed.

Getting a patent nowadays is quite as much a matter of the skill and adroitness of lawyers as of the ability of inventors, it seems.

Petroleum Coke Is Packing Plant's Fuel In Competition with $3.15 Coal

By J. C. Chatfield
N. P. N. STAFF WRITER

OKLAHOMA CITY, Jan. 16

FOR almost three years the Oklahoma City packing plant of Morris & Co. has been burning petroleum coke under its boilers. The company was a pioneer in working out a successful method of burning the fuel and still remains one of the most important purchasers of coke in the southwest. At the present time the company consumes approximately 70 tons of coke per day in its boiler plant. This represents about 10 per cent of the production of petroleum coke in Oklahoma and Kansas. Reports of the U. S. Bureau of Mines for August showed a production of 22,200 tons in the two states. In November the production was 20,900 tons, an average of 697 tons per day.

Although the Morris plant is equipped to burn gas, fuel oil, coal or coke and can change from one fuel to the other in a few minutes time, there has been no switch away from coke in the past 30 months. The coke is burned alone, without the admixture of any other fuel.

Prior to 1920 the Oklahoma City plant of Morris & Co. was a heavy consumer of fuel oil produced at Oklahoma refineries. The plant used as high as 500 barrels per day during periods of peak operation and maintained an average of over 250 barrels per day.

In January, 1920, the company completed the installation of equipment for the pulverizing of solid fuel and began burning Oklahoma coal. From that time until 1925 the company almost ceased to be a consumer of the fuel products of Oklahoma refineries. There are ample supplies of soft coal in Oklahoma from the strip mines in the vicinity of Tulsa and the coal mines of the McAlester district which can be moved in the state on low freight rates. The company has been able to buy steam coal at as low as about $3.15 per ton delivered at the plant.

At the Morris plant cars of petroleum coke are unloaded from the siding direct into a bin below the tracks from which it passes to a crusher to break up any lumps. The company buys coke breeze but delivery of still run coke is often made. Just beyond the crusher a system of magnets has been installed to eliminate any pieces of metal which may be in the fuel.

These chunks of metal in the coke cause the company more trouble than any other feature of the operation. The writer was shown a large box at the Morris plant containing dozens of 1¼ inch nuts, a number of bolts, bronze beaters, lengths of chain, one triangular length of metal pig and other odds and ends.

In opening up manholes in reaction chambers it appears that clean-out men frequently allow nuts from the manhole cover to drop into the coke. The bronze beaters are those which break off of the revolving stem used at some plants to clean out coke.

Rollers of the crusher at the Morris plant are installed with wooden pins so that they will be sheared off readily when pieces of metal reach the rollers. Sometimes the metal objects strike the crusher in such a manner that the rollers are broken. In either case every large piece of metal which comes through shuts down the crusher for a little while.

The company would be greatful if refiners would have their clean-out men use more care in saving beaters, nuts, bolts and tools.

FROM the crusher the coke is conveyed to a rotating drum in which it is subjected to heat sufficient to drive off any moisture in the fuel. It is next passed to the pulverizing mills from which 80 per cent of the coke comes out at 200 mesh or finer and none coarser than 100 mesh.

Suction fans pull the pulverized coke up from the mills to a separator from which it passes by a screw conveyor to storage bins. The same air is used continuously in the system to avoid any excess of oxygen at any time which might cause an explosion of the finely divided coke dust.

From the storage bins the pulverized coke is fed by gravity into hoppers from which it goes into mixing chambers where it is mixed with air and blown into the furnaces. A pressure equal to about 8 inches of water is maintained at the inlet to the furnace.

THE mixture of air and pulverized coke enters at the front and top of the furnace which is about 20 feet above the floor of the furnace. The burning coke drops to the bottom at which point it is calculated to be virtually all consumed. The hot gases are deflected upwards by the floor and pass upwards about 20 feet before reaching the bank of boiler tubes. There is no wall between the downflowing flames and the upflow of hot gases.

Since the installation is now more than 8 years old it does not contain some of the more modern refinements in boiler plant practise but the efficiency is considered excellent still and there appears to be no immediate reason for rebuilding.

Since the plant uses pulverized fuel there are no grates in the furnace to be burned out by the extremely hot fire caused by burning straight coke. There is no accumulation of ash in the furnace worthy of mention. Virtually all of the ash passes out the

Where Tramp Iron Is Troublesome

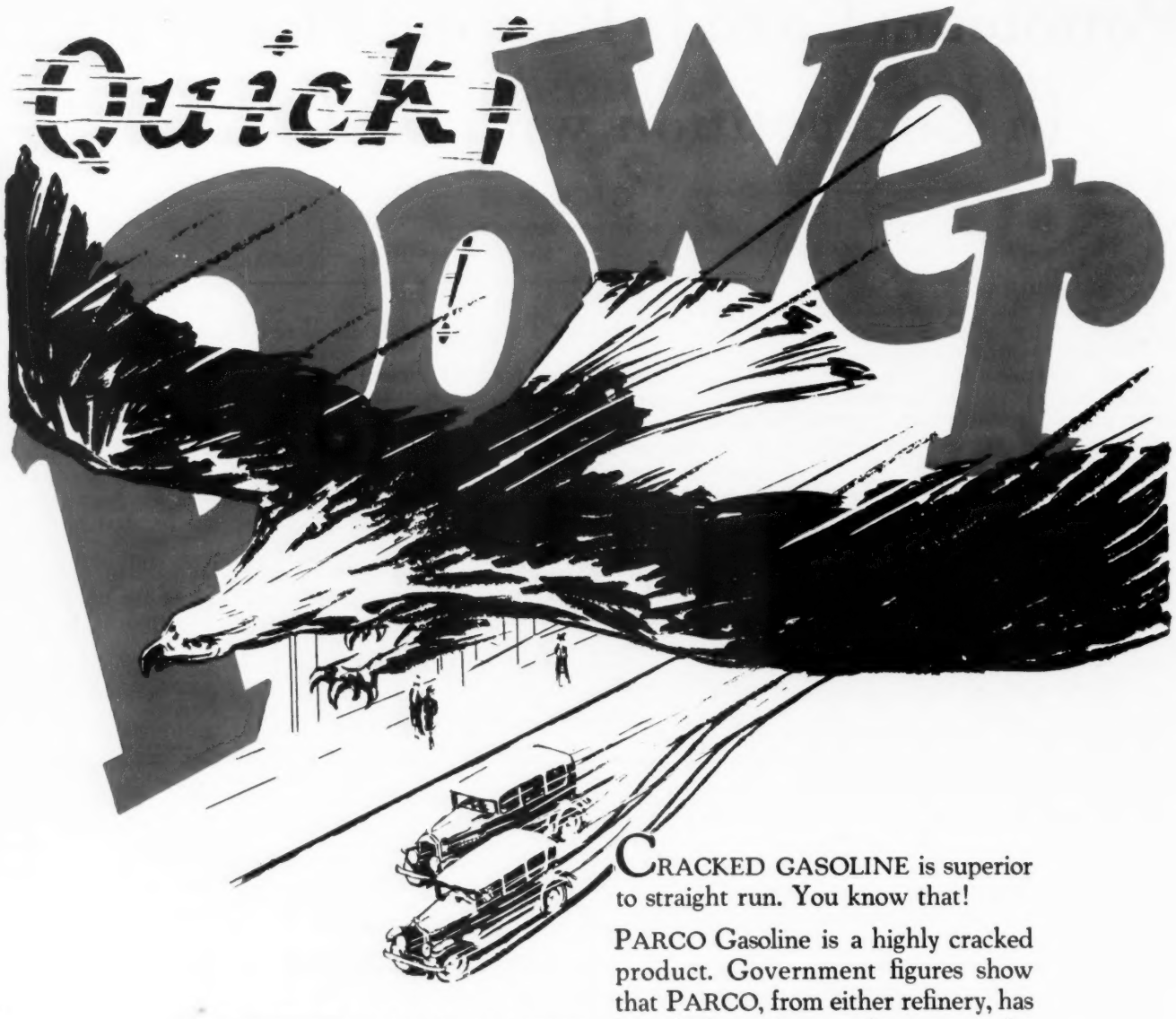
IT ISN'T necessary for an industrial boiler plant to have the most modern equipment in order to burn powdered coke more profitably than even very cheap coal.

Iron or steel or bronze in the coke, however, is likely to make serious trouble in the crusher machinery and for that reason refiners should try to make their men more careful when cleaning out reaction chambers or coke stills, not to drop nuts or other bits of steel into the coke.

The fact that there are no grates in a furnace for burning powdered fuel does away with one of the stumbling blocks to the use of coke in solid fuel furnaces, that is the burning out of grates by the intense heat.

Wooden pins to hold the rollers in coke crushers are advantageous because they shear off easily when a bit of metal gets between the rollers and thus prevent more serious trouble.

Quick! Power!



CRACKED GASOLINE is superior to straight run. You know that!

PARCO Gasoline is a highly cracked product. Government figures show that PARCO, from either refinery, has approximately twice the percentage of cracked gasoline as the average for these districts. It has more than twice the average for the entire United States.

The superior qualities of PARCO Gasoline are pre-determined, uniform, inseparable and controlled to meet seasonal weather. It, therefore, MUST start quickly, accelerate powerfully, and give minimum dilution and minimum knock.

A powerful, well-balanced, superior premium gasoline WITHOUT PREMIUM PRICE.

And Crystal White! And Stable! Our new treating method insures that!

PARCO PETROLEUM PRODUCTS

PRODUCERS AND REFINERS CORPORATION

DENVER CHICAGO TULSA SALT LAKE CITY MEMPHIS OMAHA

PARCO

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stack. In the 30 months of burning straight coke it has never been necessary to clean out the ash in furnaces except when the units are brought down to clean out boiler tubes.

It is an interesting fact that the company has observed no effect on its boiler tubes as a result of using coke. The tubes last as long as when other fuels have been used. This may be ascribed to the design of the furnaces which allows a total travel of around 40 feet for flame and hot gases before contact with the tubes.

One difficulty has been encountered in operation due to impurities. Now and then a little clay comes mixed with coke. This clay has a tendency to deposit in the flues and burn them out.

At Oklahoma City the company could burn natural gas at 20 cents per 1000 cubic feet. The adjacent plant of Wilson & Co. burns gas. As mentioned previously, coke has been burned in preference to coal at delivered prices for that commodity going as low as $3.15 per ton.

In operating practice the company has found petroleum coke to have a B.t.u. value of from 15,000 to 16,000 per pound as against 10,000 to 11,500 B.t.u. per pound for Oklahoma steam coal and 18,000 to 19,000 B.t.u. per pound for 24-26 Mid-Continent fuel oil.

The Oklahoma Gas & Electric Co., a Byllesby property manufacturing electricity for Oklahoma City and a large number of other points in the state, is now experimenting with petroleum coke at its Harrah plant in Oklahoma county. Early tests indicate to that company's engineers that its plant possibly does not allow a long enough flame travel to use coke to the best advantage. This early conclusion is based on a quantitative test of the loss by fly ash. Tests to date indicate an efficiency of a little over 77 per cent using petroleum coke as compared with about 82 per cent with coal. The series of tests at this plant are being undertaken on an exhaustive basis so that the company expects to have some definite conclusions within the next few months.

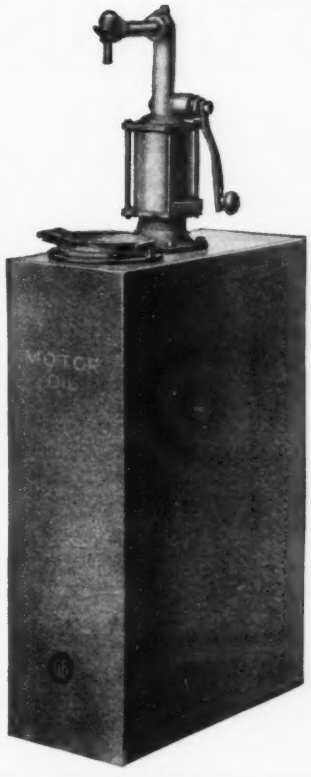
Hold Petroleum Convention

SAN ANGELO, Jan. 21.—The third annual west Texas Petroleum Convention will be held here Jan. 26 and 27. Invitations have been issued by the Board of City Development of San Angelo.

On the morning of Jan. 26 there will be registration and reception for visitors at the St. Angelus hotel. In the afternoon a varied entertainment is scheduled for 3 p.m. and at 8 p.m. a surprise program.

Jan. 27 there will be a business meeting in the morning and trap shooting, golf and other events at the country club. More golf and trap shooting are on the afternoon program. An informal stag buffalo dinner is on the program for the evening and an informal dance at 9:30 p.m.

The "Narro-Lube", *a space saving outfit for motor oil*



THIS popular G. & B. "Narro-Lube" is so slim and compact that six of the 30 gallon size can be placed in a space no larger than 2'x5'. Imagine the saving in floor space over other methods of storing and handling oils. Contrast the trim, neat appearance of a battery of these G. & B. "Narro-Lubes" with a row of oil barrels.

A most economical and convenient way of handling various kinds and grades of oil! Dependable quart pump mounted on weather-proof, strongly braced tank. Furnished in green baked-on enamel, unless otherwise specified, in 30, 45, and 60 gallon capacities.

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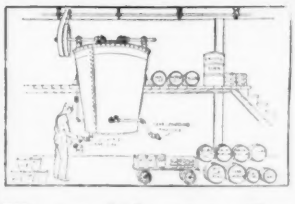

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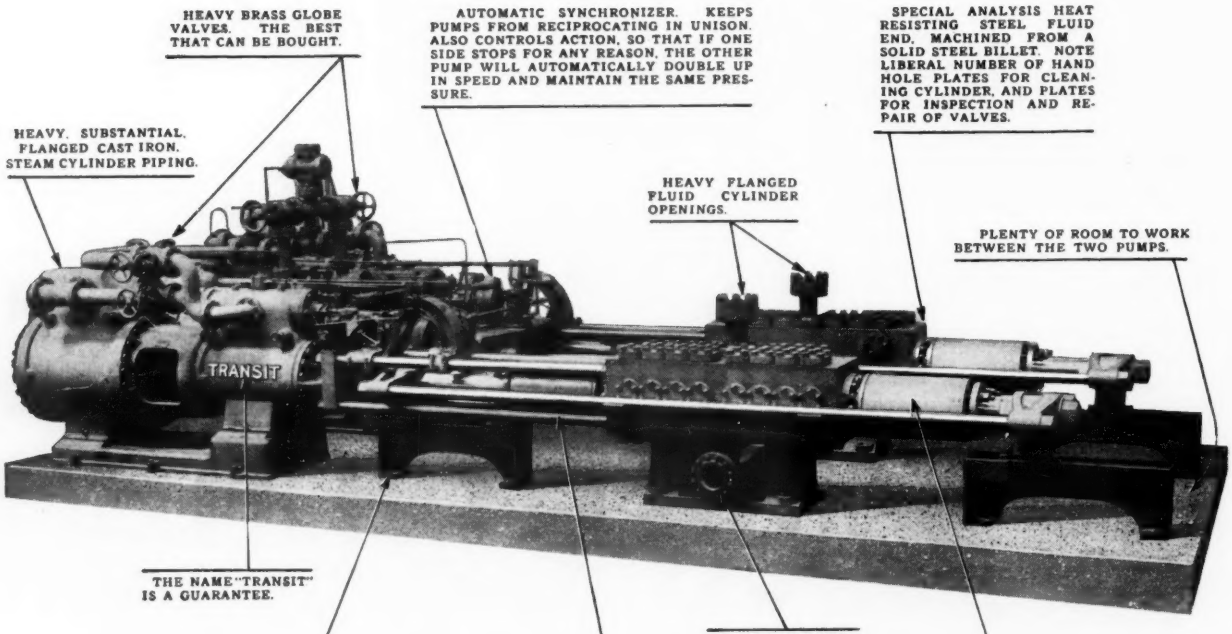
Features of TRANSIT HOT OIL PUMPS *visualized* for you


HEAVY BRASS GLOBE VALVES. THE BEST THAT CAN BE BOUGHT.
AUTOMATIC SYNCHRONIZER. KEEPS PUMPS FROM RECIPROCATING IN UNISON. ALSO CONTROLS ACTION, SO THAT IF ONE SIDE STOPS FOR ANY REASON, THE OTHER PUMP WILL AUTOMATICALLY DOUBLE UP IN SPEED AND MAINTAIN THE SAME PRESSURE.
SPECIAL ANALYSIS HEAT RESISTING STEEL FLUID END, MACHINED FROM A SOLID STEEL BILLET. NOTE LIBERAL NUMBER OF HAND HOLE PLATES FOR CLEANING CYLINDER, AND PLATES FOR INSPECTION AND REPAIR OF VALVES.
HEAVY, SUBSTANTIAL, FLANGED CAST IRON, STEAM CYLINDER PIPING.
HEAVY FLANGED FLUID CYLINDER OPENINGS.
PLENTY OF ROOM TO WORK BETWEEN THE TWO PUMPS.
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EXTRA DEEP, WATER COOLED STUFFING BOXES. EACH EQUIPPED WITH TWO SETS OF PACKING AND A LANTERN GLAND. ABSOLUTELY SAFE—NO LEAKAGE. NO DANGER OF FIRE.

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Increasing Refinery Still Capacity Without Capital Outlay

By D. F. Gerstenberger

WE HAVE considered in 8 preceding articles, many common ways of improving general methods of operation in the average refinery. There are many specific things which will, under certain conditions, help greatly to increase still capacity, at little expense, and without the cost of additional stills, so that it seems worth while to devote one article to this subject alone.

The main items mentioned before will be skimmed over briefly. First and most common, in the line of opportunities for speeding up any particular distillation without additional stills, is the installation of residue heat exchangers. They invariably supply an ideal means of high temperature heat at low installation cost. Next in line, but slightly more expensive for the actual amount of heat gained, are vapor heat exchangers.

Other items, where the heating surface is limited, are muffle furnaces which make possible a more complete utilization of the entire heating surface, instead of concentrating the high temperature at one particular point and the installation of internal flues. Recirculation of flue gases, or increased velocity of flue gases accepting a lower furnace efficiency where fuel is exceptionally cheap, at times gives the desired results.

There are various other ways of speeding up distillation without the addition of more stills or very expensive equipment. To begin with, the writer will dwell briefly on a few specific instances, which although not applicable to every problem, might, nevertheless, be suggestive of other means in many cases.

ONE of the large seaboard refineries, had installed on each battery of crude stills, a waste heat boiler to generate steam from the flue gases leaving these stills. As combustion methods and equipment were improved, the advantage of these boilers became a matter of doubt, and in time they were cut off, with the realization that the amount of steam generated hardly paid for their upkeep.

The boilers were not put in the first place because the steam they could make was needed but rather as a matter of economic principle. Naturally the boilers comprised an extensive amount of heating surface, and were of tubular construction. It was realized, that in view of the fact that efficient heat exchangers were in use, any increased feed rate to these batteries of stills must of necessity carry with it an increased amount of fuel consumed.

THE heat being picked up by the stills themselves had reached its peak. Consequently, by the addition of suitable fuel equipment, and a few changes in pipe lines, and by using the waste heat boilers as fired preheaters, an increase in the feed rate to the stills of no small proportion was accomplished whereas such increase would not have been possible without the addition of more distilling equipment.

It is realized, of course, that such equipment is not always available for this purpose, but so many times there is available equipment which might be brought into useful service, but is looked upon as being fit only for the original service for which it was constructed.

A great many pieces of distillation equipment are limited by the vapor outlet, fractionating equipment or condensing surface. It is not an uncommon thing in the refinery to see stills being pushed to the extent where the least little change in the heat supplied, or the slightest indication of moisture will cause the safety to blow, which in some cases is accompanied by vapor flashes which, while usually not dangerous, may at times lead to more serious fires. The cause is plain. It is apparent that the still can generate more vapor than some particular part of the equipment beyond the still can handle. One of the leading men in the refining industry once said, in speaking of the ordinary 1,000-barrel stills, that if he was ever in a position to build a still according to his own ideas, the first thing he would include would be 36-inch vapor lines. This may sound rather large, but it is apparent just the same that he hit the nail on the head.

High vapor velocities, mean the carrying over of a spray or mist of heavy fractions which have not had the time to disengage themselves from the vapors leaving the still. They are consequently carried over to the towers, where they are cooled off, and returned to the still, and additional heat must be supplied to redistill them. Such additional heat might better be utilized to increase the amount of useful vaporization from the stills, thereby increasing their capacity.

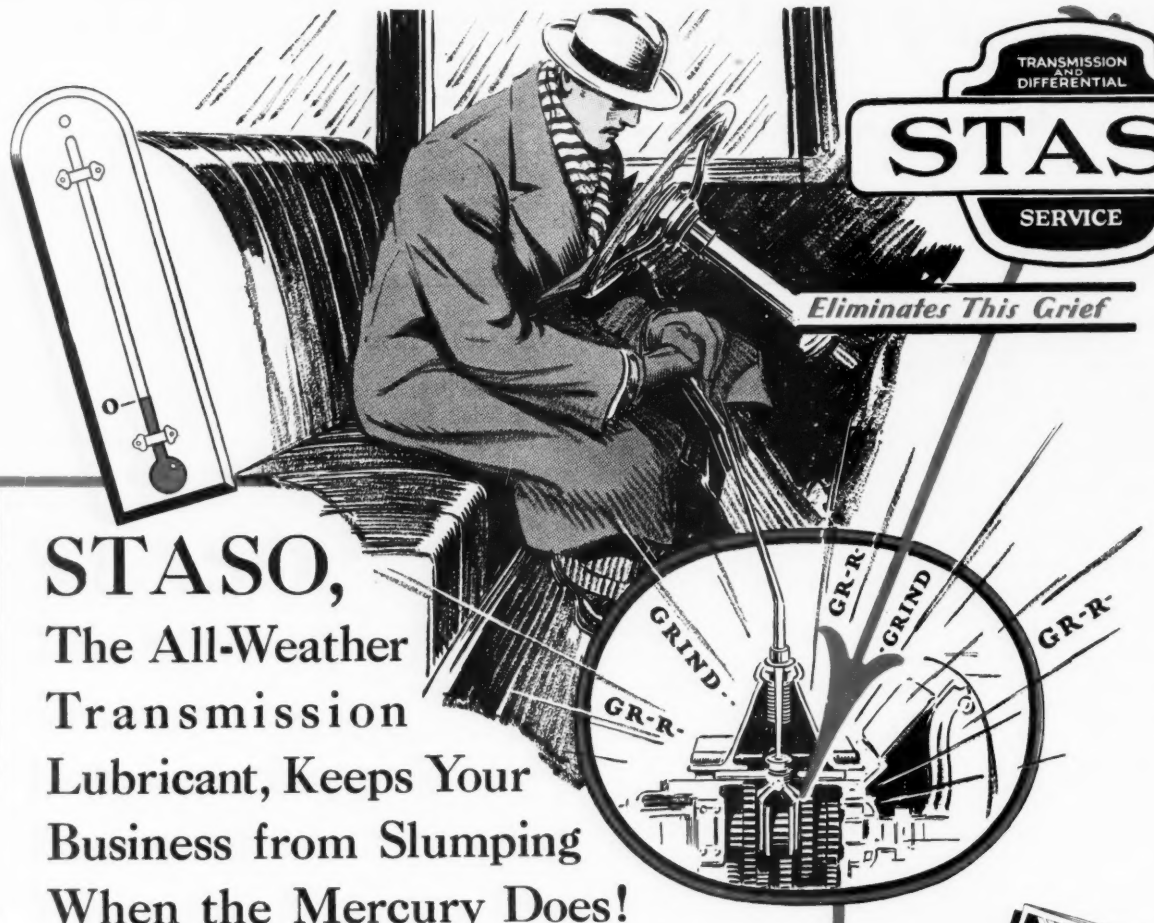
THERE is little use to dwell at length on the necessity of suitable fractionating equipment. Vapor velocities should be kept as low as possible in order to allow for the best fractionation. Bubble caps, presenting a much larger area for the passage of vapors have recently been perfected, and the results obtained from their use prove this contention beyond a doubt. By their installation in towers already equipped with older type caps, radical improvements in distillation have been accomplished and if such improvement does not lead to a possible increase in capacity at the particular stills where the improvement is made, it may be that due to better fractionation, some rerunning is eliminated, thereby freeing some of the rerun equipment for other service or increased crude capacity.

Lack of sufficient condensing sur-

Ingenuity versus Capital Investment

ALL THE ingenuity in the world, of course, cannot accomplish miracles or juggle needed equipment into existence. It can, however, go a long way toward increasing the capacity and efficiency of a refinery. In this article, the ninth in an exclusive series being written for NATIONAL PETROLEUM NEWS, Mr. Gerstenberger points out some of the practical ways of adapting to useful service various equipment no longer suitable for the purposes for which it was designed.

He also describes the undue load thrown on fractionating towers when the vapor outlets from the stills are too small and the velocity of the vapors consequently too high. Mr. Gerstenberger's tenth article will appear in an early issue.



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Representative oil jobbers have found STASO the Original All-Weather Transmission Lubricant, a *profitable* product—more than "just another lubricant"—a *real* leader for their other products!

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STASO is sold to you under a positive guarantee and we stand back of your unqualified guarantee to your customers. We also lend merchandising assistance in the form of dealer aids, advertising suggestions, etc. Our service to you does not end with the closing of the sale!

WE have prepared this instructive booklet, "Are Your Gears In Tears?", for your customers. It teaches them the value of caution in selecting a lubricant for their transmissions and differentials. It will be a great sales help to you—a stimulator which will also react to the benefit of your other lines. This is but one example of the many ways in which the manufacturers of STASO, The All-Weather Transmission Lubricant, lend advertising and merchandising assistance to their distributors.

face or sufficient condenser water, can handicap the capacity of a battery of stills to a large extent. The first result of such a condition is back pressure on the entire equipment. This will vary as the rate of distillation varies at times, and consequently will upset the fractionation, as well as cut down considerably on the possible capacity of the stills. It is unreasonable to believe that a battery of stills will be allowed to continue in operation with the condensing surface being the "neck of the bottle" as far as capacity is concerned, yet this very condition is not uncommon, for the reason that it is not seriously considered as the underlying cause.

Under certain conditions, with an expenditure of about $1,200, it is possible to practically double the capacity of certain distillation equipment. The principle is one of adequate vapor disengaging space, cutting down any unnecessary cooled reflux, and thereby bringing into play the use of the entire heating surface of the still for distillation and not for heating oil, which, due to high vapor velocities, was carried over to the fractionating equipment, and must be cooled and cut back to the still. I refer to the installation of domes of large size on the still, which act more or less on the principle of the steam dome on a boiler.

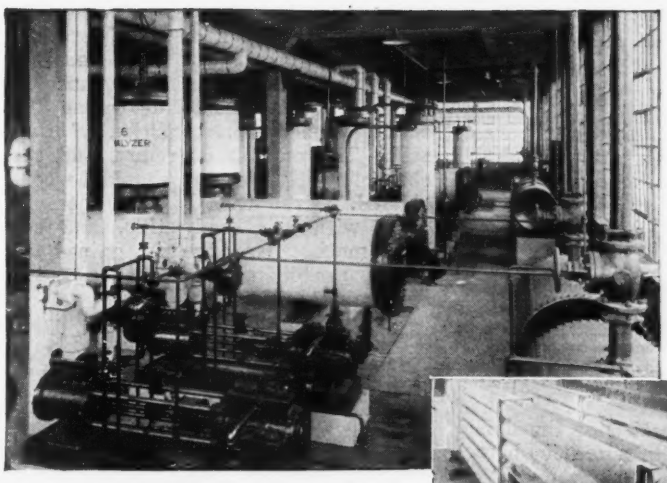
FOR comparison, consider for a minute the result of forcing a boiler beyond its capacity. We find that we reach a limit, even when we are not handicapped by a lack of heating surface, due to the fact that the boiler will prime and carry water over into the steam lines.

The same thing happens to a still when it is forced to the point, where, due to the restricted vapor space, oil is carried over by the rapid vaporization taking place in the still. As each globule or bubble of vapor comes to the surface of the liquid in the still, it bursts, causing a fine spray of the liquid which surrounds it.

If the velocity is rapid, this spray is carried over to the towers before it can disengage itself from the vapor. The dome simply supplies a means of retarding the vapor velocity to the point where the disengaging can take place, and such accumulated spray can reflux to the still with practically no heat loss.

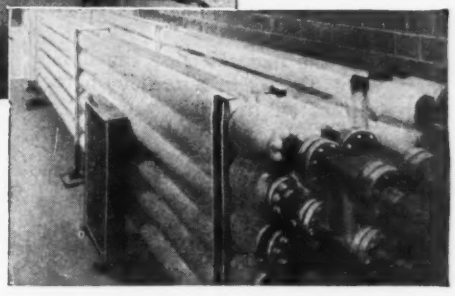
The only comparative data which the writer has available at the time, is an outline of a batch asphalt operation with and without a dome on the still. The results, however, point out clearly the advantage of such an installation, and it is sufficient to say that excellent results have been obtained by similar installation on continuous stills.

The stills from which this data was obtained were exact dupli-



An absorption installation in a large mid-west refinery. Capacity 600 tons.

Below — Carbondale chilling machine installation.



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Comparative Capacity of Stills

Still Without Dome

Over to Off	50 hrs. 0 min.
Fired to Fired	69 hrs. 0 min.
Charge at 60 deg. F.	38,898 gals.
Overhead at 60 deg. F.	15,608 gals.
Asphalt at 60 deg. F.	98.5 tons, 58 per cent
Loss	2 per cent
Lbs. of steam per gal. charge	3.55
Total Fuel Oil (includes converted fuel, steam and air)	8.5 per cent

Still With Dome

Over to Off	23 hrs. 35 min.
Fired to Fired	36 hrs. 30 min.
Charge at 60 deg. F.	36,710 gals.
Overhead at 60 deg. F.	13,090 gals.
Asphalt at 60 deg. F.	99 tons, 62.4 per cent
Loss	1.95 per cent
Lbs. of steam per gal. charge	2.2
Total Fuel Oil (includes converted fuel, steam and air)	6.45 per cent

cates with the exception of the dome. They were the ordinary 1,000-barrel type so common in refinery operation for the past 10 or 12 years. Flanged directly to one still was a dome 7 feet in diameter and 14 feet high. Each still had two 12-inch vapor lines leading to the towers. In the dome was a pan, which was located 24 inches above the still, and the oil so collected could either be run to the worm or could flow back into the still.

No cooling of any description was used in the dome to bring about condensation, and any oil collecting on the pan was consequently nothing but oil spray carried over from the still by a rapid travel of the vapors. The dome was insulated, and aside from the pan and a narrow deflector which simply carried the oil spray which was freed from the vapors back into the pan, the dome was empty.

Out of the top of the dome protruded the safety valve. The vapor lines were joined to the dome about 12 inches below the top and there being two they proceeded from opposite sides, and sloped downward to the base of the first tower.

IT WAS found that the still with the dome could handle wet stock more easily than the still without it. Consequently it could be brought over on stream more rapidly than the still of usual construction. This particular run was made on 12.8 A.P.I. gravity Mexican crude running down to a 50/55 penetration asphalt.

A study of the above comparison reveals without question exactly what the dome is doing. This is made doubly plain by the comparison of fuel and steam figures. Also, by preventing the carrying over of any heavy fractions, which under ordinary conditions would be taken away from the stills, the actual yield of asphalt was increased. These advantages, aside from the increased capacity of over 100 per cent shows without question that high vapor velocities from still to towers are not only undesirable, but detrimental to efficient operation. The run without the dome was a fair average of what the stills could do so equipped. The run with the dome, was not the best that the dome still could do. The over to off time was reduced later to between 18 and 19 hours for a similar operation.

For the installation of domes on continuous batteries, a study must be made of each still to determine the actual vaporization condition of that still. The amount of reflux, and the character of the reflux should be considered. Even then it were best to start with the head stills, and see how much advantage is gained as domes are installed on each of the succeeding stills.

As reflux is eliminated to a greater extent, or rather cooled reflux, I should say, in the head stills, it may be that even with increased throughput, the condition of those stills farther down the line will be benefited considerably.

With a proper dome installation, and proper bubble tower equipment it will be found in a great many instances, that the overhead and condensate from the bubble tower may be cut to the house completely fractionated. Cooled reflux thus eliminated, gives still capacity for additional feed stock.

"Free Gas or Air" Depends on Local Barometric Reading

By E. W. Jordan

Engineer, Bessemer Gas Engine Co.

WE HAVE been asked; What is meant by the expression "Free Gas" or "Free Air" in connection with compressor work?

It is well known that the base of atmospheric pressure for all engineering requirements is the barometric reading at sea level, which is generally taken as 30 inches, corresponding with 14.73 pounds and in practical work designated as 14.7 pounds.

Free air then, when spoken of as zero, or 14.7 pounds absolute, is dependent upon a barometric reading of 30 inches of mercury. But when the term free air is used in connection with compressor work, it is intended to mean free air based on the barometric reading at the location of the compressing plant, as for instance:—

If the plant is located at an altitude where the barometric reading is, say, 26.5 inches, this would be an elevation of approximately 3,000 feet and the zero of atmospheric pressure would be 26.5 inches x .491 = 13.77 pounds instead of 14.7 pounds as at sea level.

Obviously, then, in making a test on a compressing unit, it would not deliver as much air on a 14.7 free air base at 3,000 feet elevation as it would at sea level. For example: Take a compressor with a volumetric displacement of 500 cubic feet per minute, and the pressure conditions were such that the volumetric efficiency would be 85 per cent, then the delivery at sea level would be 500 x .86 = 430 cubic feet of air at a density of 14.7.

Now take the same compressing unit to an elevation of 3,000 feet, the displacement of free air and volumetric efficiency, under local conditions, would be just the same, that is, 500 x .86 = 430 cubic feet per minute based on 13.77 as zero, but if we were to say, in all cases, that free air meant 14.7 base, the actual delivery of 14.7 free air would be

$$\frac{13.77}{}$$

500 x .86 x 14.7 = 402 cubic feet per minute of 14.7 free air, and the efficiency would be stated as .80 per cent instead of .86 per cent, and would not be fair to the compressor, unless the 14.7 base was specifically stated, in which case the volumetric efficiency would be corrected accordingly.

Gas, being a commodity of barter, has somewhat different rules:

Instead of basing zero pressure of gas on 14.7, the zero is called, for general purposes, 14.4, as this corresponds to the average barometric reading in the representative gas fields. However, the expression "free gas" is taken in exactly the same meaning as "free air", depending entirely on the local barometric reading, regardless of the 14.4 base, and the volumetric efficiency test on these conditions would be the same as above.

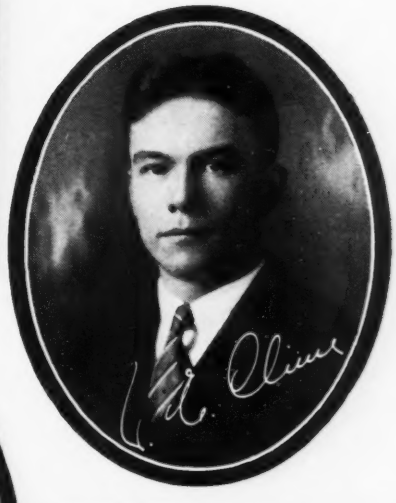
Editors Note: Mr. Jordan has promised to write for NATIONAL PETROLEUM NEWS *from time to time on practical matters in connection with the operation and maintenance of gas engine equipment.*

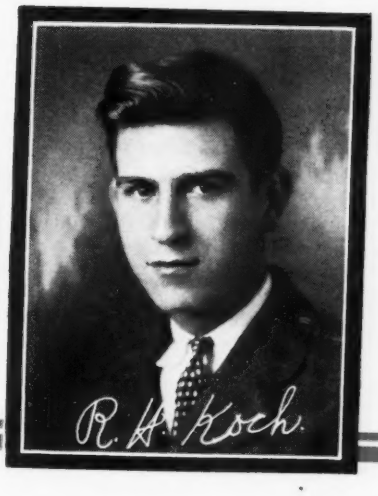
Anglin To Talk on Equipment Evils

INDIANAPOLIS, Jan. 19.—The first of a series of business conferences for members and friends of the Indiana Independent Petroleum Marketers Association will be held at the Hotel Severin here on Jan. 26, according to Sam Hurd, field secretary.

B. H. Anglin, vice president in charge of sales, of the Indian Refining Co., Lawrenceville, Ill., will talk on "The Evils of Free Equipment."

Jobbers' Department





Letters To The Editor

National Petroleum News

Editor, NATIONAL PETROLEUM NEWS,

Dear Sir:—

The writer has been reading an article entitled "The Orifice Meter for Measuring Gas, Its Installation and Care," published in the Jan. 11 issue of NATIONAL PETROLEUM NEWS, page 25.

Mention of recording specific gravity meters is made in this article but there is no mention made of a correction for compressibility of the gas.

Hydrocarbons do not obey the perfect gas law and since the development of orifice formulas such as Westcott's depends on the gas law, the flow calculated from such a formula using the specific gravity at atmospheric conditions is incorrect.

This correction factor comes into the formula as the square foot of the isothermal or the compressibility factor. The error assuming perfect gas law depends on the pressure, the temperature, and the analysis of the gas. The heavier the gas and the higher the pressure the greater the deviation from the perfect gas law.

Errors of 4 to 15 per cent, depending on the analysis of the gas, occur at 300 pounds per square inch gauge pressure. We have found that it was necessary to develop an orifice formula in which corrections can be made for this deviation.

(signed) C. H. BOHN,
THE CARBIDE & CARBON CHEMICALS CORP.

* * *

Editor, NATIONAL PETROLEUM NEWS:

Dear Sir:—

In the Dec. 21 issue of NATIONAL PETROLEUM NEWS I note there is an article entitled "Thirty Dollars Is the Cost of Effective Water Treater for Natural Gasoline Plant," by F. B. Good, chemist for The Texas Co., in which the construction and operation of a home-made water treater has been discussed. After reading this article I have come to the conclusion that while it is a good description of the method ordinarily employed in the treatment of water it does not fully cover the subject.

In the first place, two tanks, one 3 by 3 by 4 feet and the other 4 by 4 by 12 feet, if assembled and altered according to the instructions of the author, would be an extremely good bargain if purchased for $30. I am quite sure that if the building of such a plant were attempted this cost would be considerably exceeded.

I note that no provision has been made for cleaning the filter bed, a condition which with the limited settling time and the high velocities prevailing to be the most important part of the through these tanks would undoubtedly lead to the filter becoming impervious to water in a very short time.

In any chemical type water softener the proportioning device may be said to be the most important part of the machine for it is necessary that the chemicals be added in the exact amounts which will react with the hardening salts present and leave a minimum of excess in the treated water. It seems to me that if proportioning be attempted by means of the crude device described in this article the character of the treated water would be extremely uncertain and uneven, due to the fact that no attempt is made to correlate the amount of chemical fed with the amount of raw water entering the softening chamber. Neither has any attempt been made to correct for the solubility of the soda ash which would cause it to feed out in a very short time or for the insolubility of the lime which would cause it to settle to the bottom of the mixing tank. I am also inclined to believe that the chemical tests proposed by Mr. Good have been reduced to a state of simplicity which has also impaired their usefulness.

The statement is made that if a precipitate is formed upon the addition of ammonium oxalate to raw water containing a little ammonia the presence of calcium carbonate is indicated. This is not entirely true for any soluble salt of calcium will give the same indication. In the same fashion it is also proposed to test for calcium sulfate by adding barium chloride to some of the water which has been acidified whereupon the formation of a white precipitate insoluble in nitric acid is supposed to indicate the presence of calcium sulfate. It is my impression that sodium sulfate or any other sulfate which is soluble will give the same reaction. Again, in the testing of the treated water the author makes the statement that alkalinity minus causticity equals the deficiency of lime and causticity minus alkalinity equals the excess of lime. It is common practice to assume that twice the causticity minus the alkalinity equals the excess of lime present in treated water; the causticity determination as ordinarily carried out with phenolphthalein indicating the full amount of hydroxide present and one half the amount of normal carbonate present, while the alkalinity when determined with methyl orange indicator indicated all of the hydroxide content and all of the normal carbonate content. By doubling the causticity reading and subtracting the alkalinity from it the hydroxides present whether they be caustic lime or caustic soda will be indicated.

The same sort of logic would apply in building an automobile as in building a water softener of the continuous type. If either is purchased from the reputable manufacturer and operated according to his instructions good service will result, but if either be fabricated from materials at hand and operated in a more or less haphazard fashion erratic results will be obtained.

(signed) D. M. MOSES,
Chemical Engineer,
Graver Corporation.

* * *

Editor NATIONAL PETROLEUM NEWS,

Dear Sir:—

In the article by R. P. Mase and myself on natural gasoline (page 67, Jan. 4 issue, NATIONAL PETROLEUM NEWS) we stated that the temperature of 120 degrees Cent. below zero was necessary in fractionating natural gas to recover the butane and higher constituents from the gaseous ones, the methane, ethane and propane.

This temperature should be 90 degrees Cent. below zero and is the temperature which F. M. Seibert and I discovered to be the requisite one in our early work in fractionating natural gas, and published by the Bureau of Mines in 1916 in Technical paper 104.

(signed) GEORGE A. BURRELL.
Burrell-Mase Engineering Co.
Pittsburgh.

* * *

Editor NATIONAL PETROLEUM NEWS.

Dear Sir:—

I am sorry that the "Head of a Small Plant" hid his light under a bushel, as his article, "Has the Small Refiner an Economic Place in the Gasoline Business?" (N.P.N. Jan. 11 issue—page 49) shows that he is a clear thinker on economics.

The oil business needs more people who will write readable articles like this, which are economically sound. I hope that he will come out of the dark so that we will know who he is. We are going to have a meeting of the Petroleum Section of the A.I.M.E. in New York in February which will have some petroleum economics included in the program. I would like to see this writer join the group interested in economics at this meeting.

(signed) ARTHUR KNAPP,
Petroleum Engineer

Inner-Court of Pure Oil Building Is 23-Story Garage

Staff Special
CHICAGO, Jan. 21

MUCH attention was centered coincidentally with the ban on parking in Chicago's "loop" upon the new garage in the Pure Oil building at 35 Wacker drive, a storage garage 23 stories high which was opened for business last June and is beginning now to operate at full capacity. The establishment's capacity is 600 cars at one time and, if necessary, could put away 1000 machines in 24 hours for periods of 8 to 12 hours.

The Pure Oil building is approximately one-fourth of a city block square. There is no court in the building, all the offices are outside rooms. The space within the building which ordinarily would have been a court or a "well", is occupied by the garage. It is a building within a building.

The two structures were built at the same time and were parts of the same set of plans but they are not interconnected. It is impossible to go from one to the other without going below the street grade. A 13-inch fire wall separates the two structures, and there are no doors.

Wacker drive is a double-deck street. Entrances to the office building are on the upper level and entrance to the garage is on the lower level.

When a motorist wishes to patronize the garage he must enter it from the lower level from the east, through one of two big garage doors. There are no ramps but there are two possible courses from each door, thus the two entrances break the rush hour traffic up into four streams, all moving in the same direction toward four elevators.

When a customer reaches the elevator his car is standing on a steel platform, set in a pit flush with the floor. The motorist must leave his brakes off, but he may lock his car doors if he likes.

The attendant gives the owner a three part check. The attendant keeps one piece, the car owner another, and the third is attached to the car door. The check indicates what floor and in what stall the car will be in. The owner accompanies it no farther.

What happens to the automobile is interesting. The automatic machinery operates with such precision that it gives the impression of magic. The elevator doors open; the platform under the car lifts slightly at the rear, and the car rolls by gravity onto the elevator. The elevator moves, at the rate of 500 feet a minute, to the floor where the car will be stored. There is an attendant on each elevator but each is equipped with automatic push-button control.

The automobile is rolled quietly from the elevator to its stall. It is moved by raising one end of the steel platform in the elevator. Its course is guided all the way by tracks of structural steel. It is impossible for two cars ever to touch. No garage attendant ever starts the motor of a car after the owner shuts it off.

The machinery that handles the automobiles is electrical, installed by the Ruth Engineering Co. Its mechanical precision overcomes the "human element" which constitutes the major part of the hazard in garages where customers and attendants drive cars to and from the stalls. The sequence of the mechanical operations are interlocked so that they do not interfere with each other.

There are 552 parking spaces; six booths per floor per elevator. Forty-four of these spaces are held for "dead storage" at a cost of $7 per month. The daily storage rate is 75 cents for 12 hours. A $20 coupon book brings this rate down to 66 cents a day for 12 periods, and a monthly pass costing $25 allows any customer free run of the establishment with 24-hour service.

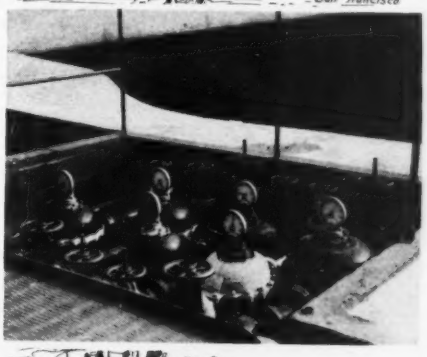
The elevators can handle a car a minute. There is no chance for two cars to meet in the drive, for there is only one direction of traffic through the garage. Customers, on receipt of their cars, leave the building on the west side, or to the passenger elevators to the office part of the building.

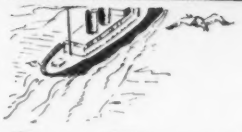
As motors are not operated on the storage floors, no expensive ventilation is required by city ordinance. On the second street level, where cars come in and go out, 40,000 cubic feet of fresh air is pumped in a minute and is heated to a uniform temperature of 50 degrees.

In the sub-basement, one floor below the garage main entrance, is an automobile laundry and greasing establishment. The laundry can turn out 50 cars in 10 hours. Cars are delivered to this department by the elevators also.

The garage is the only outlet Pure Oil Co. has in Chicago for its gasoline and motor oils. It is not a commercially profitable enterprise, it is said, because the company has no bulk storage in the city, but it is maintained through a local distributor to take care of this one garage account. It is a matter of pride with the company that Pure Oil products should be sold at the Pure Oil building, accessible to its several hundred motoring employees.

NIAGARA METER TRAVELS





No. 2

San Francisco, Cal.

LOCATED in a picturesque spot, overlooking San Francisco's famous "Golden Gate" is the modern refinery of one of America's largest and oldest oil companies. And among the many types of modern equipment which help speed up production are several Niagara 3" I. V. and 4" J. V. type oil meters, six of which are shown above, placed adjacent to the valves on gasoline and Diesel oil pipe lines. These six meters will handle 1,400 gallons *per minute*.

Here again, Niagara Oil Meters have proved their worth, for where no other method for measuring was possible, they are *constantly* on the job providing a perpetual inventory by *accurately* checking and recording every gallon that passes through the pipes.

A Type and Size for Every Requirement!

No matter what your meter requirements may be, there are types and sizes of Niagara Oil Meters that will definitely meet them.

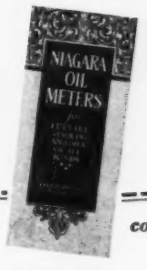
Niagara Oil Meters are known for their ruggedness and dependability in measuring liquids under the most extraordinary conditions. They are known to render accurate and trouble-free service where temperatures of 500° or 600° Fahrenheit are reached and where working pressures of 300 pounds are encountered.

If you are still depending on measurements taken by pails, stick gauges, etc., do not delay another day in finding out about the long service records of Niagara Oil Meters.

BUFFALO METER COMPANY
2889 Main Street — Buffalo, New York

Niagara Oil Meters

Have you sent for your free copy of our new booklet?



The coupon will bring you one. Mail it today!

Mail this *coupon Now!*

Buffalo Meter Co., 2889 Main St., Buffalo, N. Y.

Yes, do send us a copy of your new Niagara Oil Meter Booklet.

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SUN

No. 87

A Distilled
BRIGHT STOCK

A Better
600 Fire Test Oil
For Less Money

Furthermore, a less amount of Sun No. 87 is required to make oils of given viscosities.

Never before has any refiner produced a distilled bright stock which has equalled or even approximated Sun No. 87's purity; its low carbon content, its remarkably low cold test, or its high fire test.

Other specifications:

VISCOSITY 150 to 175 at 210° F. · LOW COLD TEST
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GOOD DEMULSIBILITY · PRICED RIGHT

By compounding your own oils with No. 87, you can sell your trade better oils at lower prices with an increased profit.

Write us for full information and mixing charts

SUN OIL COMPANY
PHILADELPHIA

How Jobbers May Save Money by Forming Co-operative Traffic Bureaus

By P. H. Banks*

DURING a year the traffic department of our company is called upon to route from 15,000 to 20,000 cars of freight to our stations and customers on which we pay the charges. In addition, we route probably 10,000 cars consigned to our customers on which the basis of sale is f.o.b. Lawrenceville. All of these shipments, totaling approximately 30,000 cars, must be properly rated and routed by our company, so as to secure expedited service at a minimum cost.

While the checking of freight bills, invoices, and other documents is a necessary and important duty of the traffic department, they are just some of the details. The more important work is keeping our rates on a competitive basis with other points and seeing that they are published by the carriers on what we understand to be the proper basis or level. During 1926 and 1927 we secured 1915 reductions in the petroleum rates from Lawrenceville. We had four coal rates reduced, involving the movement of coal into Lawrenceville. We had 177 coke rates reduced, and in addition secured reductions on miscellaneous shipments of signs, tin cans, barrels, and other material, totaling approximately 500 rates.

Because of these rate adjustments the Indian Refining Co. saved approximately $75,000. Saving to our customers I have not had time to calculate, but it was considerable.

Other duties of the traffic department are the tracing of cars, and reconsigning of shipments. We reconsign about 100 cars a year. It is also our duty to file all claims for overcharge and loss and damage, check all demurrage bills and penalty charges, furnish advice on legal questions involving traffic matters, make arrangements for side tracks, and establish credit arrangements with the carriers. We also examine all tariffs, classifications and rule circulars of the carriers, and study all decisions of the courts, state and interstate commerce commissions, involving traffic questions. We also prepare and handle all complaints before state and interstate commerce commissions.

We collected in actual overcharges for the first 10 months of 1927 a little over $10,000, which is better than ½ of 1 per cent of our total freight bill. In addition we picked up a couple of thousand dollars on invoices covering materials purchased. In some cases the freight differential was on the improper basis, then again the gallonage was incorrect, or our accounting department made improper allowances on shipments sent collect, freight allowed.

The proper packing and description of articles must be watched closely, not only to avoid loss and damage claims but to keep the transportation cost down. A saving of $2,000 was made on sign poles. In this case our purchasing department ordered shipped from a certain point in Indiana numerous sign poles to various destinations. These poles measured 21 feet 6 inches and on the top of them was screwed an iron ball, which made the total length slightly over 22 feet. The weight of each pole was about 100 pounds and the value approximately $7. The consolidated classification provides that on articles exceeding 22 feet in length, charges will be assessed on the basis of first class rates, with a minimum of 1,000 pounds. Before proper instructions could be placed with the shipper two of these poles were shipped and the carriers assessed charges on the basis of first class, with a minimum of 1,000 pounds, which in the instance I have in mind resulted in a charge of about $10 a pole.

The normal charge for a shipment of this character is about 85 cents. Of course, the shipper should have been familiar with the classification rule and arranged to ship this material so as to avoid these excessive charges. Either through ignorance or oversight this was not done until our instructions reached them. The solution of this problem is very simple. All that is necessary is to detach the ball and wire it to the pole. We then have an article less than 22 feet in length, on which

*Assistant traffic manager, Indian Refining Co.

Manager Explains Refiner's Traffic Bureaus

HOW Independent jobbers in a state might save themselves thousands of dollars yearly by the creation of co-operative traffic bureaus was told Ohio jobbers recently by H. P. Banks, assistant traffic manager, Indian Refining Co., Lawrenceville, Ill. Mr. Banks explained to the numerous county petroleum clubs in Ohio how the Indian company's traffic department functioned. He gave actual figures of amounts saved, in a year many times the cost of the traffic department, not only on shipments of petroleum products, but on everything the Indian used at its refinery or used or sold at its marketing stations.

Although Mr. Banks did not recommend that the Ohio Petroleum Marketers Association, of which the petroleum clubs are adjuncts, should create a traffic bureau, he did say association members could save a large amount of money that is now wasted each year because of errors in freight rates charged them, errors in billing, and lack of knowledge of advantageous routings and classifications.

The idea that the Ohio association should have a traffic bureau was generated two years ago when the Indiana Chamber of Commerce won a reduction on rates from the Mid-Continent into Indiana, the reduction leaving a 5-cent hump at the Ohio-Indiana line. The association appointed a traffic committee of which J. L. Marsh, Vahey Oil Co., Youngstown, is chairman. Intervention of the Youngstown Chamber of Commerce and the Farm Bureau was secured in the western rate cases but the association as itself has not intervened, said W. A. Milne, executive secretary of the state association.

Mr. Banks said any state association might model a traffic bureau after the bureaus of private corporations. Here is his description, in part, of the Indian's bureau and how it works.

An INDIANA Motor Truck by its dependable performance enables You to handle more business — by its Economy builds Greater Profits — by its fine appearance advertises Your Business

LETTERS from INDIANA users in the Petroleum industry, tell us these things are proven facts.

They tell of INDIANAS which have given dependable service day after day for six, seven, eight years and more. They speak of remarkably low ton mile operating costs. They comment on the invaluable asset of INDIANA'S unequalled appearance.

You can buy INDIANA Trucks complete, or chassis alone, in 4 and 6 cylinder models, 1 to 7 ton capacities. Their prices establish new standards of motor truck value.

Write for literature and name of our nearest branch, distributor or dealer. When may we arrange a demonstration for you?

INDIANA TRUCK CORPORATION
501 Indiana Park *Marion, Indiana*

Factory Branches, Distributors and Dealers Throughout the Country

Proved by Performance INDIANA TRUCKS *OUR 19th YEAR*

the normal charge applies.

Considerable saving can be made by the consolidation of l-c-l shipments into carloads. It would seem to me that with your organization and co-operative buying of miscellaneous supplies you could take advantage of this means of cutting down transportation costs.

Some time ago we placed an order with a Dayton concern for some tanks and with another concern in the same city for some pumps. Neither of these orders was large enough to make a carload, but the two together would. We accordingly took up with each of the Dayton shippers with request that the tanks be trucked to the pump manufacturer's place of business. This was done and shipment went forward to us on the carload basis, resulting in a net saving of $30.

Early this year we were making shipments into Michigan and the rate was 31 cents per hundred. A new tariff was issued which contained provisions preventing the application of this 31-cent rate on our traffic. This situation was due entirely to the fact that the various carriers involved could not agree on proper division of the through rate. We handled the matter with interested roads and finally had the old rate of 31 cents re-established. This took considerable time and during the interim our shipments were moving. Some rate had to be charged and the best basis available was a combination resulting in excessive charges amounting to some $1600. After the old rate was again put into effect, we submitted to the interested roads claim for the excessive charges with request that they handle matter with Interstate Commerce Commission and secure authority on the informal Docket to refund the amount indicated. This was done and the claim paid.

Another manner in which informal complaints occur is when the through published rate from one point to another exceeds some combination of intermediate rates. As an example of this, when the rates from Illinois to Indiana were reduced 2½ cents about a year and one-half ago it had the effect of making lower rates from Lawrenceville to various Kentucky points. That is to say, by taking the reduced rate to Jeffersonville on the north bank of the Ohio river and adding thereto the rate to Lexington, which was originally based on the old factor up to the north bank of the Ohio River before the Illinois-Indiana reduction. In cases of this kind, carrier's attention is directed to the combination rate which is lower than the published through rate and they in turn arrange for prompt reduction, inasmuch as a through rate which exceeds a combination of intermediate rates is a violation of the fourth section of the act to regulate commerce.

Before a refund can be made by

the carriers in cases of this kind it is necessary for them to handle with the Interstate Commerce Commission, admitting that excessive charges have been collected and explaining in detail to the commission how such charges accrued. Invariably the commission authorizes the refund sought.

Errors in invoicing are illustrated by an invoice rendered to our company on a shipment of kerosene oil purchased f.o.b. Tulsa and shipped from Newport, Ill., freight prepaid. In this case incorrect rate from Tulsa to Marion, Ind., was used by the shipper. In addition to that we were charged with $139 from Newport instead of $104. These errors resulted in a net overcharge of some $48 which was refunded to us when the matter was submitted to the shipper. Taking this same invoice and computing it on the basis of shipment being forwarded from Newport, freight charges collect, overcharge would have been $13.

In marketing our products and in purchasing material, our sales department finds it necessary to know definitely the transportation cost from all oil shipping points to all destinations in our marketing territory. So that this information will be before them at all times the traffic department has supplied them with a rate book, which is kept strictly up to date.

We show rates from some 30 oil shipping territories, the origin points running across the top of each sheet in alphabetical order. The destinations are arranged on the left in alphabetical order. Our people desire the rates per hundred and the rates per gallon, and in order to furnish this information in compact form we employed rate basis numbers.

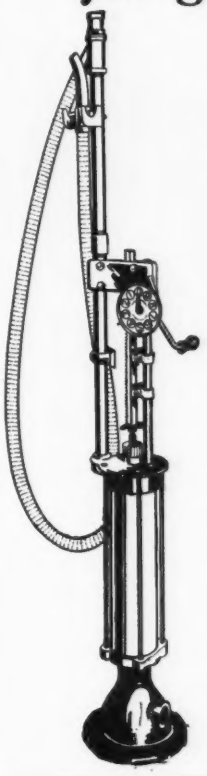
For instance, take the rate from Amarillo, Tex., to Akron, O., the base number is 117. By referring to the table of rates the rate per hundred for base number 117 is 58½ cents, while the rate per gallon is 3.861 cents.

In this rate book we have approximately 10,000 rates, and it is prepared in loose-leaf form and kept strictly up to date, our various departments being informed of all changes.

A change in rate from one point to another simply calls for a different base number, inasmuch as the Table of Rates is fixed and never varies. For example, the present rate from Amarillo to Akron under basis number 117 is 58½ cents. Should this rate be advanced to 60 cents per hundred we would simply change the base number to 120.

In working out this formula for a rate book we started with ½ cent per hundred, which equals .033 points per gallon. We then progressed the rates ½ cent per hundred, and thirty-three points per gallon. The purpose of this is so that for a quick cal-

A NEW GALLON PUMP
for gasoline or kerosene



IF you so desire, you can get this new Model T-81 with a can-filling discharge for kerosene instead of the overhead hose discharge for gasoline. Construction throughout is on a par with that which you will find in the larger, more expensive pumps. Note that every gallon delivered is recorded on a dial register. Also that quantity stops are provided for measuring quarts and half-gallons.

Low-priced—well built—good looking.

Just the model for developing your small accounts such as farms, small public garages, fleet owners, and large private garages.

Write for Bulletin T-81. Also for prices.

GILBERT AND BARKER
MANUFACTURING COMPANY
PUMPS AND TANKS FOR THE OIL TRADE
SPRINGFIELD MASS. U.S.A.

WHEN YOU WANT QUALITY AND REASONABLE PRICES

Mixed Carload in Drums—or Tank Cars

"INVINCIBLE" MOTOR OILS

"CASTOR-OI" (BEAN CASTOR BLEND) MOTOR OIL

100% Pennsylvania or Western Blends

To Match Any Oil Made

A. D. MILLER SONS' CO.

Millers Oil Refining Works

PITTSBURGH, PENNA.

Oldest Pennsylvania Refiners

The Biggs Boiler Works Co. Akron, Ohio

Bulk Storage and Station Tanks

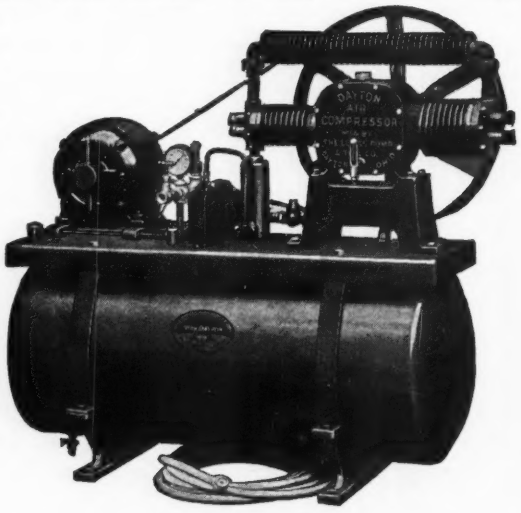
FORTY years successful experience; plant fully equipped for fabricating plate up to 1½" thick. Your specifications and inquiries are invited.

Pressure Stills for Cracking Process - Fractionating Towers - Dephlegmating Towers, Bubble Towers - Heat Exchangers - Agitators - Steam Stills - Crude Stills - Condenser Boxes, Run Down Tanks - Blending Tanks - Hemispherical Tanks - Blow Cases - Acid Tanks, Compounding Kettles - Storage Tanks to 80,000 Barrels - Smoke Stacks and Breechings, etc.

THE BIGGS BOILER WORKS CO., Buchtel and Bank Sts., Akron, O.; 300 Madison Av., New York

What Class Of Work Do You Want Your Compressor To Perform?

THAT is a question which should be fully considered and answered before you decide upon the size, type, capacity and cost of the compressor you will install.



Do you want a compressor to inflate tires for a limited number of pleasure cars, or must the one you install serve a lot of heavy trucks day after day?

This "G" 8 Dayton Will Cover All Needs

It has a 2 H. P. Motor—Capacity 8 Cub. Feet Per Minute—Equipped with 60 gallon Tank. Ready to Go.

We build the "G" in six other sizes, so that you can get this Two-Stage type to fit any filling station need.

These "Dayton G" compressors are built without connecting rod, crosshead pin, bolts or cotter pins. Free from all troubles.

The reason why filling station owners install Daytons in the new stations they build is that they have learned that they have less trouble and practically no cost where Daytons are at work.

Get Bulletin. Ask questions. We won't let you go wrong.

The LUCAS PUMP & TOOL COMPANY DAYTON, OHIO.

DAYTON AIR COMPRESSORS

425 Valley St **Dayton, Ohio**

GRANBERG PETROLEUM METERS

Are Precision Instruments of Established Merit.

They are extensively used on Tank Trucks, Truck Loading Racks and Tank Car Unloading Lines and are universally satisfactory wherever it is desirable to secure accurate measurements.

We have made a technical and practical study of the problem of accurately measuring petroleum oils and are prepared to give expert advice and assistance on the subject.

Engineers from our home office are permanently located in the Middle West and on the Atlantic Coast, for the purpose of helping our customers with their metering problems.

It will pay you to use our meters and profit by our knowledge and experience.

ASSOCIATED SUPPLY COMPANY

79 New Montgomery St. —Meter Department— San Francisco, Calif.

culation if you divide the base number by two you get the rate per hundred, and if you divide it by three you get the approximate rate per gallon.

The business of our company, while mainly consisting of carload shipments, also includes numerous l-c-l shipments. In order to avoid the expense of trucking such shipments to the railroad companies' depot we had established at Lawrenceville a trap car service. This means that if we have a number of l-c-l shipments to various customers and destinations equaling or exceeding a total weight of 8,000 pounds, the railroad company will place a box car on our siding. The shipments are loaded therein and car handled by the carriers without any additional expense over the flat rate per hundred from Lawrenceville to the various destinations.

The question of demurrage is an important one and our principal effort is along the line of insisting that all cars be unloaded promptly. Ordinarily 48 hours is permitted after arrival of car for unloading, and if detained longer than that period, demurrage accrues. In order to keep down the demurrage expense we have at most of our stations entered into what is known as average agreements with the railroads. Under these agreements we are allowed a credit of one day on cars unloaded within the first 24 hours of free time and are charged a debit on cars held beyond the 48 hours free time limit.

At the end of the accounting period, which is on a monthly basis, if our credits exceed the number of debits no demurrage is charged. If, on the other hand, our debits exceed the credits then demurrage at the rate of $2 per debit is assessed.

We do have considerable box car shipments consisting of oil in barrels, cases, and crates. In order to avoid the weighing of each individual package, we have entered into weight agreements with the Central Weighing & Inspection Bureau, whereby average weights are used on our standard packages.

On any shipment unduly delayed the traffic department places a tracer and on package goods also files notices of intended claim in the event of non-arrival or damage. All claims for loss and damage must be filed with the carriers within six months after the date of arrival, or within six months after a reasonable time has elapsed in which to make delivery. Unless this is done the claim is barred under the law. It quite often happens that it is not practical to file claim immediately and in order to avoid the chance of claim being outlawed, notice of claim is filed with the carriers. This automatically operates to stay the running of the six months statute.

in step *of your 1928 boss?*

FOUR or five years ago the service station operator with a good location was sitting pretty. With three cars per station then to only one today, competition wasn't so keen or disturbing. In those days the service station operator was virtually the boss of the business in his neighborhood.

Conditions have changed—*radically.* With the widespread acceptance of the automobile as a utility of everyday necessity the motorist has assumed the position of boss of the service station operator's business. In addition to good products the 1928-style motorist demands faster service, cleaner service, shorter periods for re-fuelling and accurate measure. While his demand is not expressed out loud, the modern motorist patronizes stations that are conveniently laid out.

The Erie Meter System is the answer to today's demands on the part of motorists for more efficient service. The Erie Meter System is a continuous flow method of dispensing gasoline at the rate of 20 gallons per minute. Erie Meter Systems are not 5-gallon or 10-gallon pumps. The nozzle control of the Erie Meter System makes it possible to deliver the exact quantity of gasoline to the motorist's car. Eliminates the liability of spilling gasoline—reduces the fire hazard. This enables your attendants to handle more customers and to give snappy, courteous service to each customer. Erie Meter Units command respect. They are well designed, pleasing in appearance and add greatly to the general attractiveness of your service station layout.

More than 14,000 Erie Meter Systems are now dispensing gasoline to well over a million motorists. An interesting story based on the experiences of oil marketers—Erie users—showing how the Erie Meter System has set the pace in building gallonage, is yours for the asking. You have a real opportunity for bigger business in 1928 by using Erie Meter Systems.

ERIE METER SYSTEMS, INC.
506 East 10th Street · · Erie, Pennsylvania

The Erie Representative is a good man to know. His experience developed from actual contact with the problems of many oil marketers in different parts of the country can be of practical benefit to you. His services are available in helping you to meet the problems of your business.

ERIE
ERIE METER SYSTEMS

7 Reasons for Investing in an Erie Meter System

1. Continuous Flow.
2. Hyspeed Service.
3. Increases Gallonage.
4. Insures Constant Accuracy.
5. Stops Waste from Overfilling.
6. Engineered to sustain appearance and efficiency.
7. Continually Improved by Practical experience since 1921.

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ERIE METER SYSTEMS, INC.
506 East 10th Street · · Erie, Pa.

I want to know how I can increase gallonage, make more profits and attract steady customers. Send me complete information and prices on the Erie Meter System.

Name .....

Company .....

Address .....

City ..... *State* .....

Our Industry — A Page of Facts and Personalities

National Petroleum News

By Paul Wagner

SYDNEY ROBERTS of the geological department of the Transcontinental Petroleum Co., Tampico, has returned to Mexico with his bride after a honeymoon in The States.

* * *

THE social side of oil company management in some of the remote fields of west Texas, isolated as they are from centers of population, ofttimes calls for considerable ingenuity on the part of those in responsible positions. The Big Lake Oil Co., one of the two operating interests controlling the Big Lake field, in Reagan county, provides a motion picture theater at its camp at Texon. In a recent contest held in conjunction with this feature, two ponies were given as prizes. These, it appears, were purchased some days in advance of the actual close of the contest. The only "beasts of burden" with which the company had previous experience belong to that variety consuming large quantities of gasoline and lubricants. In this instance, it developed that the "prizes" strongly objected to such a menu and were in danger of passing a second feeding time without hay or oats. M. R. Williams, secretary of the Big Lake company, was appealed to and after dispatching his apologies to his wards for the oversight he instructed that the delinquency be remedied forthwith; and the expenses incident thereto charged to the theater account.

* * *

PAUL HUNTER, district geological head of Marland Oil Co. of Texas at Abilene, is recovering from a recent operation. Hunter, who formerly was attached to the Fort Worth geological staff of Marland, was transferred to Abilene when a district was created there nearly a year ago. J. A. Bonham, formerly of Shreveport, handles land affairs at Abilene for Marland of Texas.

* * *

AN ALL Texas group of radio stations now broadcasts periodically each week under the name of the "Magnolene chain," through courtesy of the Magnolia Petroleum Co., which operates KFDM at its Beaumont refinery. Other stations frequently hooked up on the chain include WRR at Dallas, WBAP, at Fort Worth, KPRC at Houston and WJAD at Waco.

CHARLES MERCER

BEFORE becoming identified with the Fort Worth division offices of Continental Supply Co., where he is now an executive assistant, Charles Mercer was long identified with operating oil companies of the Mid-Continent. He was for several years chief scout of the Gypsy Oil Co., Oklahoma-Kansas subsidiary of the Gulf Oil Corp., and later executive assistant in the Fort Worth offices of Sinclair Oil & Gas Co., in Ranger-Burkburnett development days.

Prior to entry in the oil business Mr. Mercer was secretary to former United States Senator Robert L. Owen, spending many years at Washington.

* * *

CAPTAIN GEORGE DAVIS, head of the marine department of the Mexican Gulf Oil Co., has returned to Tampico after spending the holidays at Houston and elsewhere in Texas.

* * *

CARY P. BUTCHER, formerly west Texas division geologist of the Kirby Petroleum Co., is now San Angelo district geologist of the Continental Oil Co. of Texas.

* * *

A. L. SCHUMACHER is now manager of the Metropolitan Oil Co. at Tampico. He succeeds L. A. Whittemore, resigned.

WARD B. POWELL, independent operator at Fort Worth, is again active after a prolonged illness. He has taken up golf and may be found on the links regularly when not in his office in the Fort Worth National bank building.

* * *

F. D. SHANKS is district superintendent at Aberdeen, Miss., for the Natural Gas & Fuel Corp., arm of the Henry L. Doherty interests engaged in petroleum activities in Arkansas, Louisiana and Mississippi.

* * *

ORD WATSON of the Royal Dutch-Shell organization at Maracaibo, Venezuela, has been visiting relatives in Texas while on a leave of absence in The States since the holidays.

* * *

JOHN EADS, JR., of the geological department of the Transcontinental Petroleum Co., field subsidiary in Mexico of the Standard Oil Co. of New Jersey, has returned to Tampico after a five weeks visit in San Antonio.

* * *

THE TEXAS CO.'S No. 1 Stephens wildcat, in the southeast corner of sec. 79, H&TC block 1, Fisher county, is about 30 miles northwest of the Noodle Creek development in southwestern Jones county. The well is roughly nine miles east of Rotan and within two or three miles of the nearest rail point at Royston.

The pay is in the Cisco series beds, about 100 feet lower stratigraphically than the horizon from which production comes in the Noodle Creek field. In both areas surface structures are found in the Merkel dolomite, but the Fisher county find is considered by all odds the best structure of its kind in this part of Texas.

The Texas Co. has about 6,000 acres around the well; Sinclair Oil & Gas Co., Midwest Exploration Co., Humble Oil & Refining Co., Marland Oil Co. of Texas and a few others the delinquency be remedied forth- area. The Texas Co. paid Merry Brothers & Perrini, a Fort Worth firm, upwards of $60,000 for the block when originally taken up.

* * *

F. J. OMO of the Texas Pacific Coal & Oil Co., Fort Worth, is temporarily in eastern territory in connection with the sale of his company's new aeroplane motor oils.

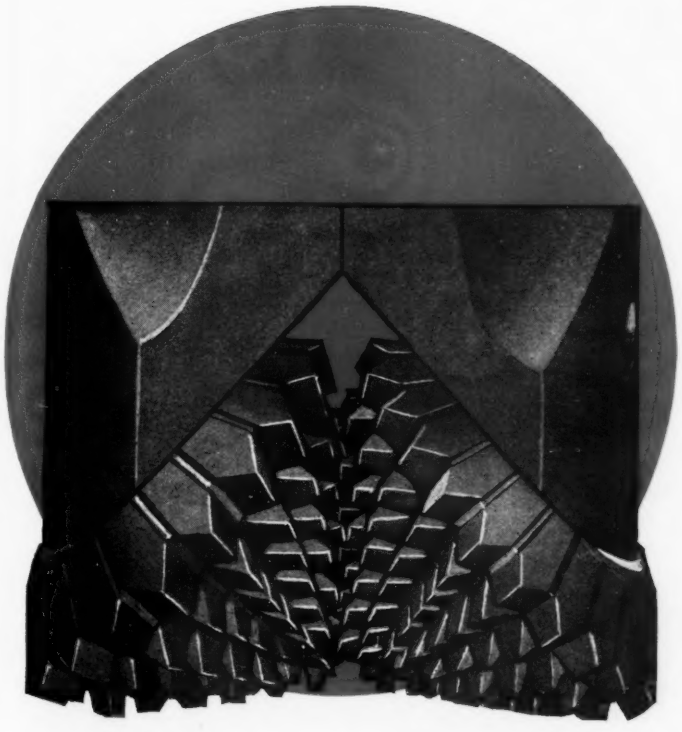
* * *

COLONEL DAN T. MOORE, Houston factory representative of Northern Pump Co., recently returned from a business trip to Minneapolis and Chicago.

1927

Greatest of all years in PERFORMANCE for

HUGHES ROCK BITS



HUGHES TOOLS

"Sold by Supply Stores Everywhere"

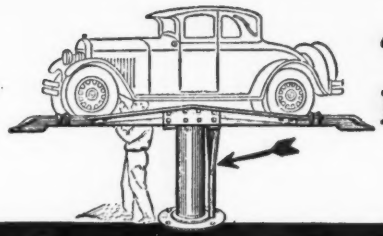
HUGHES TOOL COMPANY

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant
HOUSTON, TEXAS

Export Office
New York City

"Quick Service"



"Big Profits"

Safety Lift

16 Beaver Street, New York City

GULF Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York, Houston, Atlanta, Boston, New Orleans, Tampa, Philadelphia, Louisville

REFINERS OF OKLAHOMA TEXAS AND LOUISIANA

PETROLEUM

REFINED OIL
GASOLINE
NAPHTHA
GAS OILS
PARAFFINE WAX
PETROLEUM COKE

Fuel Oil--Lubricating Oils

CYLINDER ENGINE
CORDAGE

RED AND PALE PARAFFINE OILS

New Patents

Jan. 10

REFINING

Method of Deodorizing and Filtering Oils—Victor C. Benjamin, Los Angeles, Calif. Filed Sept. 29, 1925. No. 1,655,175.

Refining of Petroleum Hydrocarbons—Paul McMichael, Flushing, N. Y., assignor to Hydrocarbon Refining Process Company, Inc., New York, N. Y. Filed Feb. 14, 1924. No. 1,655,069.

Refining of Petroleum Oils—Paul McMichael, New York, N. Y., assignor to Hydrocarbon Refining Process Co. Inc., New York, N. Y. Filed Oct. 23, 1923. No. 1,655,068.

Hot-Oil Pump.—Aladar Hollander, Berkeley, and Robert Schurman, San Francisco, Cal., assignors to Byron Jackson Pump Mfg. Co. Filed Sept. 21, 1925. No. 1,655,545.

Casing for Fluid-Pressure Apparatus.—Aladar Hollander, Berkeley, Cal., assignor to Byron Jackson Pump Mfg. Co. Filed Feb. 3, 1926. No. 1,655,546.

Double Casing Pump.—Aladar Hollander, Berkeley, Cal., assignor to Byron Jackson Pump Mfg. Co. Filed June 2, 1926. No. 1,655,547.

Method and Apparatus for Treating Petroleum Oil.—Audrey D. David, Chicago, assignor to The Universal Oil Products Co. Filed Feb. 14, 1923. No. 1,655,596.

Apparatus for Treating Hydrocarbons.—Gustav Egloff and Harry P. Benner, Independence, Kans., assignors to Universal Oil Products Co., Chicago. Filed June 28, 1920. No. 1,655,600.

Process of Distilling Petroleum Oil.—Richard Wright Hanna, Piedmont, Cal., assignor to Standard Oil Co. of California, San Francisco. Filed Mar. 31, 1923. No. 1,655,603.

Treating Hydrocarbons. — Alfred Schwarz, Montclair, N. J., assignor to Coal and Oil Products Corp., New York, N. Y. Filed Feb. 13, 1923. No. 1,655,741.

Treating Oils.—Arthur F. L. Bell, San Francisco, assignor to Associated Oil Co., San Francisco. Filed Aug. 11,1924. No. 1,655,890.

Oil-Refining Still and Method of Making the Same by Electric-Arc Welding.—William F. Woolard, Wauwatosa, Wis., assignor to A. O. Smith Corp., Milwaukee, Wis. Filed Feb. 27, 1926. No. 1,655,930.

Oil-Refining Still and Method of Making the Same by Electric-Arc Welding.—Clifford B. Langstroth, Milwaukee, assignor to A. O. Smith Corp., Milwaukee. Filed Mar. 13, 1926. No. 1,655,931.

PRODUCTION

Swivel Bailer Top.—Frank J. Hinderliter, Tulsa. Filed Aug. 2, 1924. No. 1,655,463.

Deep-Well Pump.—William A. Minor, Rochester, N. Y., assignor to Luitwieler Pumping Engine Co., Rochester, N. Y. Filed Aug. 24, 1926. No. 1,655,621.

Electrically-Operated Oil-Well Pump.—Benjamin F. Schmidt, Los Angeles, Cal., assignor to King C. Gillette and King G. Gillette, Los Angeles, Cal. Filed Dec. 9, 1924. No. 1,655,825.

Bit.—Bert Travis, Whittier, Cal. Filed Dec. 29, 1926. No. 1,656,025.

Tubing Slip and Spider.—Walter L. Church, Houston, Tex., assignor to William L. Pearce, Houston, Tex. Filed July 24, 1926. No. 1,656,043.

Shock Absorber for Oil-Well Pumps.—Claude E. Coleston, McKittrick, Cal. Filed Feb. 2, 1927. No. 1,656,046.

MISCELLANEOUS

Tank Roof—Jay Albert Stough, Tulsa, Okla. Filed Oct. 8, 1925. No. 1,654,846.

Apparatus for Concentrating Acids—Otto Mantius, Englewood, N. J. Filed Aug. 15, 1925. No. 1,655,019.

Liquid and Gas Contact Apparatus—Frederick H. Wagner, Baltimore, Md., assignor to The Bartlett Hayward Company, Baltimore, Md. Filed June 17, 1925. No. 1,655,171.

Tank Filling and Venting Means—William A. Daniel, Neenah, Wis. Filed March 28, 1927. No. 1,655,312.

Art of Preparing Leather.—Ansel M. Kinney, Chicago, assignor to Standard Oil Co., Whiting, Ind. Filed Mar. 23, 1925. No. 1,655,868.

Retort for the Distillation of Oil Shales.—Lawrence Turner Fairhall, Cambridge, Mass. Filed Apr. 23, 1926. No. 1,656,107.

FACT No. 1

[Correcting the statement that:—
"All advertising globes are alike"]

The Colors in Cincinnati Globes will not "Oxidize"

The advertising value and service you get from your investment in globes is dependent on how well and how long your globes will stand up in actual use.

If the colors retain their brilliance and snap after years of use, then you have received greater value than if the same money had been spent for globes subject to oxidation, fading, peeling, etc.

Cincinnati Globes are *not* subject to these weaknesses — particularly oxidation. We stress the fact that they *will not oxidize* because, having metallic or ceramic pottery colors fused or "fired" in the glass, they would be subject to this fault had we not discovered the *precise firing heat* necessary to prevent it.

Through our "firing" process the colors actually become a part of the glass — proof against time and weather. After years of use the colors remain the same in brilliance and intensity as the day the globe left our hands.

However, this is just one point of superiority—just one fact which disproves the thought:—"All globes are alike." Succeeding announcements will give other facts which proclaim the supremacy of Cincinnati Globes.

Write us about your globe requirements. Full descriptive literature will be sent and we will gladly quote on reproducing your trade design in everlasting Cincinnati Globes.

THE CINCINNATI ADVERTISING PRODUCTS CO.
Cincinnati, Ohio, U. S. A.

If desired, our Art Department will create a new design for you

Large or small orders handled systematically—shipped promptly

CINCINNATI GLOBES

SELL MORE GASOLINE AND OILS

TRIPLEXD
GASOLINE HOSE

ALL sizes and lengths of Triplexd Hose are carried in stock in these cities:

MEMPHIS: 245 Monroe Ave.
JACKSONVILLE:
Dixie Culvert & Metal Co.
ATLANTA: P. O. Box 1343
RICHMOND: P. O. Box 514
BROOKLYN: 236 Tillary St.
BOSTON: 142 Berkeley St.
PITTSBURGH:
341 Second Avenue
CLEVELAND:
4336 Broadway
CINCINNATI:
450 East Pearl Street
DETROIT:
5459 Grand River Avenue
ST. LOUIS:
1621 Pine Street
KANSAS CITY:
13th Street and Eastern Ave.
CHICAGO:
1213 W. Washington Blvd.
SAN ANTONIO:
1401 South Flores Street
HOUSTON:
700 N. San Jacinto Street
EL PASO:
1020 East Overland Street
NEW ORLEANS:
211 South Peters Street
MINNEAPOLIS:
900 Sixth Ave., S. E.
DENVER: 4800 York Street
SAN FRANCISCO:
873 Mills Building
LOS ANGELES:
1625 South Hill Street
SEATTLE: 67 Columbia St.
OMAHA: 13th & Willis Sts.
TORONTO, CAN.: Dunlop Tire & Rubber Goods Company, Limited
LONDON, ENG.:
J. Bazley-White, 3 Love Lane, Eastcheap, E. C. 3

METAL HOSE & TUBING CO.
INCORPORATED
236 Tillary Street
BROOKLYN, N.Y.

How Business Men Can Find Time To Read

By John Allen Murphy

National Petroleum News

THOMAS A. Edison acknowledges that he regularly reads more than 50 business and technical papers, besides several newspapers. He also reads a number of books each month.

It might be assumed that one who is so prolific in original ideas as Mr. Edison is, would not find it necessary to devote so much time to reading. Mr. Edison would probably explain that he originates very little. Invention is as much the adaption of existing ideas to a given problem, as it is the creation of something entirely new.

At present Mr. Edison is trying to discover some cheaper and faster method of growing rubber. It can be imagined that he is reading every thing that he can find on the subject. Undoubtedly he is ransacking every book, pamphlet, business paper or technical publication that promises to give him any suggestions.

Great inventor, though he is, Mr. Edison would be foolish to depend entirely on himself for the solution of the problems on which he is working. Wisely he seizes help wherever it is available.

Sir Francis Bacon said that "reading maketh a full man" and that he who does not read "had need have much cunning, to seem to know what he doth not." In other words, the man who does not read, should be shrewd so as to make up for his lack of knowledge.

Shrewdness is a most desirable quality, but in modern business it does not adequately substitute for knowledge. Ideas are now the motive power of commerce. The business that is managed on shewdness alone, cannot compete with the enterprise that is kept alive by a constant influx of new ideas.

Observation, talking and reading are the principal sources of ideas. The first two are important sources, although limited in their possibilities. Most business men get the vast proportion of their ideas from reading. In fact, it is difficult for an intelligent person to read without getting ideas.

The strange thing about it is that the idea that jumps out of the printed page may be entirely unrelated to the subject being read about. I know a man who got an idea for an advertising campaign as he was reading an Uncle Wiggily bedtime story to his little girl. Another reader got a suggestion for a window display from a cartoon. A manufacturer called on a friend. As he was waiting in the reception room, he picked up a technical paper that he had never seen before. In it he read a short article on a production process. Although he was in a different type of business, he learned of a plan from that article, which later cut down his manufacturing costs $100,000 a year.

Carl Byoir, president of the American Gear Co., and who is also associated with several other enterprises, was reading an article on an educational system when a new type of business suggested itself. The business was started and it succeeded. On another occasion he was browsing leisurely through a publication when a page of pictures caught his attention. A few months later an advertising and printing business was launched, the idea for which was obtained from that spread of pictures.

Obviously there is no way of computing the amount of money that business men make annually as a result of the reading they do. But it is no exaggeration to say that it would run into the millions. (c) 1927, Fred A. Wish, Inc.

Gasoline Stocks Gain 2,000,000 Barrels

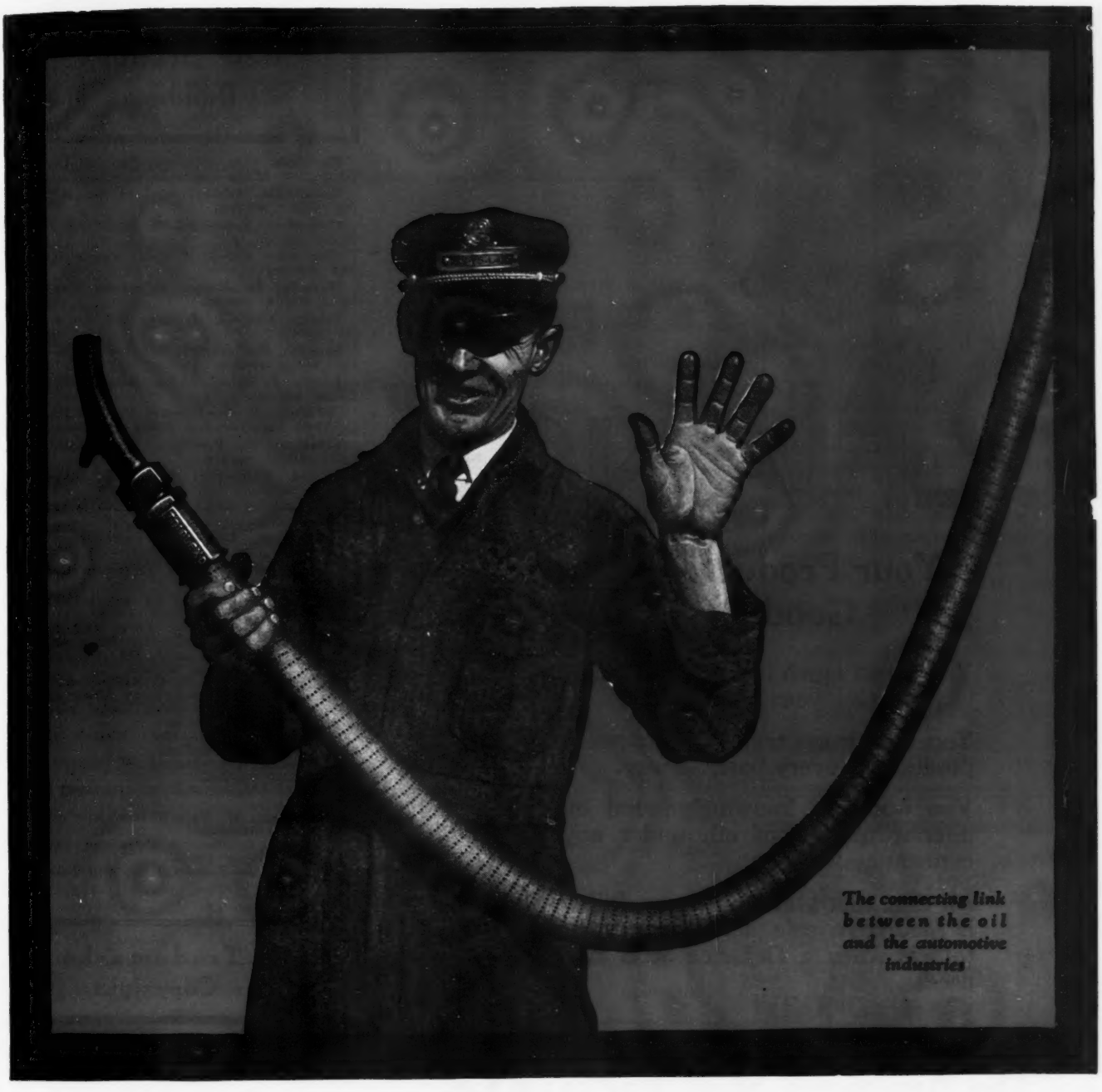
NEW YORK, Jan. 21.—Pipe line and tank farm gross domestic crude oil stocks, east of the Rockies, increased 2,054,000 barrels during December, standing at 350,000,000 barrels on Dec. 31, according to the American Petroleum Institute. This compares with an increase of 1,777,000 barrels in November over October.

A net increase of 3,022,000 barrels in refinery stocks of all products was recorded in December at plants covering 87 per cent of the country's operating capacity east of California, compared with a net increase of 1,535,000 barrels in November.

Gasoline stocks east of California increased 2,196,000 barrels, standing at 18,547,000 barrels on Dec. 31. November's gain was 621,000 barrels.

Lube oil stocks gained 130,000 barrels in December. Kerosene stocks fell off 40,000 barrels, and gas and fuel oil stocks 46,000 barrels.

Domestic crude oil stocks increased 176,000 barrels, compared with a decrease of 443,000 barrels in November.



"There's nothing like Triplexd!"

THAT remark applies to more than the mere physical construction of the hose.

It applies particularly to the Triplexd Insurance now in force for 1000 Days on every pump you own or operate—to which Triplexd Registered Insured Gasoline Hose* is attached.

Full information on request, without cost or obligation.

METAL HOSE & TUBING CO.
INCORPORATED
236 Tillary Street
BROOKLYN, N.Y.

Triplexd Registered Insured Gasoline Hose is any length of Triplexd Filling Station Pump Hose ¾", 1", or 1¼" inside diameter, and not more than 15 feet long, shipped from our Brooklyn Factory on or after June 1, 1927

"DEFIANCE"

Your Products Deserve Good Barrels

You spend much money, time and effort in producing your products.

You are always trying to improve those products in every possible way.

You wouldn't knowingly send out an inferior quality of oil, under any circumstances.

All this, that you have so carefully built, is assured a safe delivery to your customers when a Defiance Steel Barrel is used.

The American Steel Package Co.
Defiance, Ohio

Sales Forces and Truck Fleets Use
ALLISON COUPON BOOKS
Accurate—Compact—Convenient

They realize the great convenience of coupon payments and they choose filling stations that can give them that service. Allison Coupon Books are always accurate—furnished in stock or special designs. *Send for samples and prices.*

Allison Coupon Company
Indianapolis, Indiana
Coupon Book Specialists Since 1888

New Stations Building

Muskogee, Okla.—Marland Refining Co. will erect two filling stations.

Russellville, Ark.—Cowan Oil Co. is building filling station.

Clarendon, Tex.—Holland Bros. completing filling station.

Clay City, Ky.—Hall Bros. completing filling station.

Waterloo, Ia.—Roxana Petroleum Corp. will build filling station.

Omaha, Neb.—A. J. Love will build service station.

Samson, Ala.—Sinclair Refining Co. is erecting filling station.

Isabel, S. D.—Krummie Bros. will build filling station.

Williston, N. D.—Farmers Pennsylvania Oil Co. will build or buy filling station.

Syracuse, N. Y.—Tracy Tire Corp. will build filling station.

Larned, Kan.—Bert Fiefert is completing filling station.

Independence, Kan.—Alex Gibson is building filling station.

Newark, N. J.—Vincent Carini seeks permits for filling station.

Biloxi, Miss.—American Petroleum Corp. is building filling station.

Chester, Pa.—Pure Oil Co. will build filling station.

Columbia, S. C.—S. L. Leevy and Thomas E. Hair each seek permits for filling station.

Ottawa, Kan.—Standard Oil Co. of Indiana will erect filling station.

Whitewright, Tex.—W. C. Huffines and Mrs. Gilliam Lindsey are completing filling station.

Philadelphia, Pa.—Charles Kahn plans to build six filling stations.

Garden City, Kan.—Elsey Electric Co. is completing filling station.

Ft. Smith, Ark.—Samuel W. Everett will build filling station.

Maysville, Ky.—Home Oil Co. will build filling station.

Parkersburg, W. Va.—William Albright will build filling station.

Barberton, O.—Roxana Petroleum Corp. is completing filling station.

Columbus, O.—Bryco Oil Co. will build filling station.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"DIAMOND B MOTOR OILS" with a "B" enclosed in a diamond-shaped figure. No. 257,781. Robert Hickman Blackburn, Spartanburg, S. C. For lubricating oils and greases.

"O H M PET" No. 257,516. R. T. Vanderbilt Company, Inc., New York City. For mineral oil used as an insulator and waterproofing in electric cables.

'SPEEDE" No. 239,616. The Enterprise Manufacturing Company, Akron, Ohio. For reel oil.

"LUBRO" No. 250,863. Sidney H. Ruskin, Atlanta, Ga. For greases for lubricating purposes.

"TEXACO LAR-OL" No. 254,520. The Texas Company, Houston, Texas. For lubricating oils.

"HI-PENN" No. 256,989. John A. Anderson, Chicago, Ill. For lubricating oil.

"LIQUID GOLD" No. 257,176. Looboyle Refining Company, Tulsa, Okla. For gasoline and lubricating oils.

ON THE LAZY BENCH

National Petroleum News

Why the Fairways Are Bad

The twosome was making painfully slow progress and the minister had just dubbed his approach shot for the third time.

It was then that his companion, emerging from a hand that had covered a smile, asked: "Dominie, even under such circumstances don't you ever cuss?"

The reply was vibrant with deep emotion: "I don't swear, but when something of this sort occurs, I spit," suiting the action to the word, "and where I spit," and his voice fairly rasped, "the grass never grows again."

—Independent Topic.

* * *

A Good Way To Find Out

Ted—There are a lot of girls who don't want to get married.

Nell—How do you know?

Ted—I've asked them.

—The Loreco Diamond

* * *

Do You Believe in Signs?

If you can see your shadow from an oil lamp while filling the tank of a gasoline stove, it indicates a gathering of old friends at your home.

If you smell gasoline and look for it with a lighted match, it foretells that you are about to go on a long journey.— *The Booster.*

All Dry Ads

"In ancient times the fields were full of dryads."

"Well, nobody would use a billboard to advertise wet goods now."

—The Loreco Diamond

* * *

Sinclair Lewis, writer and novelist, gives the following description of a service station which the hero of a short story passes. The story was published in a recent issue of the American Mercury:

"Why, here just last Sunday I was driving the family out to a cousin of ours that lives in Elmwood for Sunday dinner, and it was as fine a day as you ever saw, but just about the time I began to enjoy myself, and I was going past the Seven Corners and looking at the new filling-station they got there—Say, man, I'll bet that's one of the finest filling-stations in the United States: twelve pumps they got, and a comfort-station fixed up to look like an old-fashioned log cabin, and a supply store with a great big huge enormous fish-aquarium simply chucked full of goldfish right in the window. And geraniums!"

* * *

"You keep your office as hot as an oven."

"Well, why shouldn't I? It's where I make my daily bread?"

—The Loreco Diamond

Me and Mine : : : : : : : : : : : : By BRIGGS

BILL I LEFT WATERBURY AT TEN O'CLOCK IN THE MORNING AND I REACHED HARRISBURG 286 MILES AT EIGHT O'CLOCK -- HOW'S THAT FOR A DRIVE - -
I LEFT BUFFALO ONE MORNING LAST SUMMER AT SIX IN THE MORNING AND HAD TWO TIRE CHANGES - STOPPED AN HOUR IN SYRACUSE AND I WAS AT HOME IN NEW ROCHELLE BY SIX THIRTY
BILL - LISTEN - YOU MAY NOT BELIEVE IT BUT I RODE FROM PEORIA TO WASHINGTON IN 27 HOURS - STOPPING ONLY TO TAKE ON GAS AND OIL - AND -
I MADE 486 MILES IN ONE DAY - I LEFT CHICAGO AT FOUR A.M. AND I SAT DOWN TO DINNER IN MY HOME AT SEVEN O'CLOCK THAT EVENING - I CAME BY WAY OF ——— ETC.
WHAT A TIRESOME FOOL HE IS -- ALWAYS BRAGGING -
JOHNNY WOULDN'T BE A HALF BAD FELLOW IF HE WASN'T SO TIRESOME -

Reinforced Folio

362—A very compact folio, having three pockets. Made from the best grade smooth black cowhide. Stiffened bottom reinforced with metal studs. Case contains six 4-oz. bottles and five grease jars. Two inner cases may be carried.

Less 10% for Cash

Other styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware, KANSAS CITY, MO.

OVER A THOUSAND JOBBERS CAN'T BE WRONG!

The thousand and more marketers who specify "Penn Empire" on their order blanks know that those two words stand for oils that mean a steadily growing business for them and a continuously increasing patronage for their customers.

You can't go wrong with Penn-Empire—the super refined 100% Pennsylvania Oil. *A sample will tell its own story.*

EMPIRE OIL WORKS

Oil City Pa.

PENN EMPIRE

When you buy PENN-EMPIRE you buy the best.

FRY LIQUID GAUGE

2 OUTSTANDING

In the two Fry units here illustrated—the Liquid Gauge and the Flusher, Fry has made two outstanding contributions to the progress of the marketing of gasoline and oil.

The Liquid Gauge which measures the contents of storage tanks, affords for the first time the means of selling and buying gasoline on an absolutely scientific and accurate basis.

As valuable as your cash register is in your business—we believe that the Fry Gauge is even more necessary if you would be informed always as to your exact turnover and the gallonage from time to time on hand.

The Fry Liquid Gauge absolutely eliminates guess-work and inaccurate measuring methods. One gauge will take the readings of each of several tanks. Write for price and descriptive literature.

FRY EQUIPMENT CORPORATION, ROCHESTER, PA.
FRY EQUIPMENT COMPANY OF CANADA, LIMITED, TORONTO, CANADA

Domestic U. S. Motor Sales and Export Business Enlivens Gasolines

Staff Special
TULSA, Jan. 21

SALES of around 600 cars of U. S. Motor gasoline by north Texas refiners for domestic shipment, and something over 4,000,000 gallons of export gasolines by Oklahoma, Texas and Arkansas refiners, were the high lights in the Mid-Continent refinery market this week.

The Gulf Refining Co. and the Continental Oil Co. were the purchasers of the U. S. Motor. The Gulf company, about the middle of the week, bought between 300 and 350 cars at prices ranging from 5.625 to 6 cents. Today it was reported the same company was in the market for an additional 600 or 700 cars of gasoline for February and perhaps a part of March shipment. The goods were to be shipped to the Gulf's own stations, according to original shipping instructions.

The Continental Oil Co. of Texas has been making repairs at its Wichita Falls plant, and therefore has been curtailing crude runs. Production has not been sufficient to take care of the company's station requirements and approximately 250 cars of U. S. Motor have been bought the past two days for shipment over the remainder of the month.

Virtually all north Texas refiners making U. S. Motor sold some of their output on these orders. One or two refiners sold 100 or more cars, while others accepted orders down to 10 and 15 cars.

Prices on U. S. Motor gasoline in north Texas market moved up today from 0.25 to 0.375 cents a gallon, with refiners reporting goods scarce. New price levels were 5.875 to 6 cents a gallon.

Early in the week one large export company bought around 200,000 gallons of 64-66, 375 e.p. gasoline at 6.50 cents a gallon. Other export companies also had offers out at that figure but only small lot sales were reported. Friday one company raised its offer to 6.625 cents a gallon, with some purchases. A majority of refiners in the north Texas district, however, showed a reluctance to accept any new business at that figure, and it was reported today that one or two Oklahoma refiners had been offered the same price, f.o.b. Group 3, for goods.

One export company yesterday closed a deal with an Arkansas refinery for approximately 200,000 gallons of 64-66, 375 e.p. gasoline at a price net back of around 6.75 cents refinery.

THE export company which first raised its offer on 375 e.p. goods to 6.625 cents, meanwhile was purchasing around 3,000,000 gallons of 61-63, 390 e.p. gasoline from Oklahoma and Texas refiners. Approximately 1,250,000 gallons were reported bought in Oklahoma at 6.25 cents a gallon the remainder of the business being placed in north Texas at around the same figure.

That the exporters were still active was indicated today before the close of business when refiners reported they still had inquiries from at least three large companies.

Other domestic gasoline business was reported comparatively good this week. Kansas refiners indicated their business was about on a par with last week, when they showed a draft on stocks. Oklahoma refiners for the most part said they had experienced steady although not big volume buying from various parts of the consuming territory, while the Arkansas-Louisiana refiners also indicated their business had been as good as could have been expected.

Conflicting reports were heard on high gravity gasolines for domestic shipment. A few refiners said their business had been good virtually all week, while others said they had found demand somewhat slower. Prices were generally unchanged.

Buying of natural gasolines was not as brisk this week as the one previous. Several manufacturers were sold up for the remainder of the month, and all grades were not as plentiful on the spot market. One large company continued to pay 5.25 to 5.375 cents a gallon for Grade AA, which met both doctor and corrosion tests. Others sales were reported also at these prices, with odd purchases of non-doctor goods at 5.125 cents. Some natural gasoline which met all specifications but corrosion also was moved at slightly under the prevailing market.

THE other grades were in sufficient demand to prevent any price recessions. One large company during the first part of the week was in the market for Grade C but withdrew late Tuesday afternoon.

Domestic demand for kerosenes was slow, a majority of refiners reported, although orders in most cases were trickling in in sufficient volume to prevent any addition to

(*Continued on Page* 109)

Exports from Tampico District

Company	November	December
Transcontinental Petroleum Co., (Standard of New Jersey)	551,447	339,129
Pan American Eastern Oil Co.	1,729,299	860,423
Mexican Eagle Oil Co., (El Aguila)	516,894	685,186
Cia. Mexicana Holandesa "La Corona"	381,217	256,066
The Texas Co. of Mexico, S. A.	62,313	151,645
Mexican Gulf Oil Co.	61,313	137,109
Sinclair Mexican Companies	395,755	352,807
East Coast Oil Co. of Mexico, S. A. (Southern Pacific)	.....	.....
Pierce Oil Corp.	.....	40,264
Mexican Atlas Oil Co.	51,926	26,763
La Espuela Oil Co.	.....	.....
Moctezuma Terminal	51,835	.....
Mexican Oil Products Co.	.....	25,392
New England Fuel Oil Co.	.....	.....
Panuco Boston Oil Co.	.....	53,901
Empire Gas & Fuel Co.	131,200	.....
Cia. Petrolera Minerva, S. A.	50,000	.....
Penn Mex Fuel Co.	.....	69,842
Totals	3,983,199	2,998,527

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~ REFINERY DIVISION ~

GRAVER Corporation

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Plant — East Chicago, Indiana

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Jan. 23	Prices Jan. 16	Prices Jan. 9
§2-54 Naphtha	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
§4-56 Naphtha	8.00 – 8.25	8.25	8.25
§8-60 Gasoline	8.00 – 8.25	7.875–8.25	8.00 – 8.25
60-62 Str.-run gasoline	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
64-66 Str.-run gasoline	9.00 – 9.50	9.00 – 9.50	9.25 – 9.75
68-70 Str.-run gas. 350-360 e.p.	10.00 –10.50	10.00 –10.50	10.25 –10.50
OKLAHOMA			
§8-50 450 e.p. naphtha	†5.375– 5.625	†5.625– 5.75	†5.625– 5.75
§0-52 450 e.p. naphtha	†5.375– 5.625	†5.625– 5.75	†5.625– 5.75
§6-58 450 e.p. gasoline	**5.50 – 5.75	**5.50 – 5.75	**5.75 – 5.875
§8-60 450 e.p. gasoline	**5.50 – 5.875	**5.50 – 5.875	**5.75 – 5.875
§6-58 U. S. Motor, 437 e.p.	††5.75	††5.75	††5.75
§8-60 U. S. Motor, 437 e.p.	5.625– 6.00	5.625– 6.00	5.625– 6.00
60-62 437 e.p. gasoline	5.875– 6.375	5.875– 6.375	5.875– 6.375
60-62 400 e.p. gasoline	6.125– 6.50	6.25 – 6.50	6.25 – 6.50
64-66 390 e.p. gasoline	6.50 – 6.75	6.50 – 6.75	6.75
64-66 375 e.p. gasoline	6.75 – 7.00	6.875– 7.00	6.875– 7.00
68-70 350-360 e.p. gasoline	7.00 – 7.375	7.125– 7.375	7.125– 7.375
KANSAS (F. O. B. refinery Kansas destination)			
§8-60 U. S. Motor 437 e.p.	6.125– 6.375	6.125– 6.375	6.125– 6.375
60-62 400 e.p. gasoline	6.75	6.75	6.75 – 7.00
64-66 375 e.p. gasoline	7.375	7.375	7.375– 7.50
NORTH TEXAS			
§8-52 450 e.p. naphtha	†5.50	†5.50	†5.625– 5.75
§6-58 450 e.p. gasoline	†5.50	†5.50	†5.75
§8-60 450 e.p. gasoline	†5.50	†5.50	5.75
§8-60 U. S. Motor 437 e.p.	†5.875– 6.00	†5.625– 5.75	†5.625– 5.875
60-62 400 e.p. gasoline	6.25 – 6.375	6.125– 6.375	6.125– 6.375
64-66 390 e.p. gasoline	6.375– 6.50	6.50	6.625–6.75
64-66 375 e.p. gasoline	6.625– 6.75	6.625– 6.875	6.875– 7.00
68-70 350-360 e.p. gasoline	7.125– 7.25	7.125– 7.25	7.125– 7.25
NORTH LOUISIANA (For Louisiana and differential territory destination)			
§8-60 U. S. Motor gasoline	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
ARKANSAS (For Arkansas intrastate shipment)			
§6-58 450 e.p. gasoline	6.25	6.25	6.25
§8-60 450 e.p. gasoline	6.25	6.25	6.25
§8-60 U. S. Motor 437 e.p.	6.375	6.375	6.375
ARKANSAS (F. O. B. Arkansas refineries for interstate shipment)			
§8-60 U. S. Motor 437 e.p.	**6.25	**6.25	**6.25
CALIFORNIA			
*54-58 U.S. Motor 437 e.p.	7.00 – 8.00	7.00 – 8.50	7.00 – 8.50
*58-61 U.S. Motor 437 e.p.	8.00 – 9.50	8.00 – 9.50	8.00 – 9.50
*42-45 Eng. dis. 445-480 e.p.	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00

*2c tax to be added if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375° F. Since Oct. 1, 1927 all naturals must pass corrosion test.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	5.375– 5.50	5.125– 5.25	†5.00
Grade A, 72-79.9, 90% Recovery	†5.50 – 5.625	†5.375	†5.25
Grade BB, 84-92, 85% Recovery	†4.00 – 4.25	4.00	†4.00 – 4.25
Grade B, 76-83.9, 85% Recovery	†4.375– 4.50	†4.25 – 4.50	†4.00 – 4.25
Grade C, 80-92, 78% Recovery	†3.875– 4.00	3.625– 3.75	†3.50 – 3.625
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	†5.375– 5.50	5.125– 5.25	†5.00
Grade A, 72-79.9, 90% Recovery	†5.50 – 5.625	†5.375	†5.25
Grade BB, 84-92, 85% Recovery	†4.00 – 4.25	4.00 – 4.25	††4.125– 4.25
Grade B, 76-83.9, 85% Recovery	†4.50	†4.25 – 4.50	†4.125– 4.25
Grade C, 80-92, 78% Recovery	†3.875– 4.00	3.75	†3.625
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†5.625– 5.75	†5.25 – 5.50	†5.25
Grade BB	†4.50 – 4.625	†4.50 – 4.625	†4.50
Grade C	†4.125	†4.00	†4.00
CALIFORNIA			
†5-85, 375-390 e.p. blend.	8.00 – 9.00	8.00 – 9.00	9.00 –10.00

MOTOR FUEL BLENDS

PENNSYLVANIA			
68-70 Blend 437 e.p.	Prices	.....	.. ..
64-66 Blend 437 e.p.	temporarily	.....	.. ..
60-62 Blend 437 e.p.	discontinued	.....	.....
OKLAHOMA			
64-66 Blend 437 e.p.	†5.50 – 6.00	**5.625– 6.00	**5.625– 6.00

BURNING OILS

PENNSYLVANIA			
§5 w.w. kerosene	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
§6 w.w. kerosene	6.625– 6.875	6.625– 6.875	6.50 – 6.75
§7 w.w. kerosene	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
OKLAHOMA			
§1-43 w.w. kerosene	4.125– 4.375	4.125– 4.375	4.25 – 4.50
§2-44 w.w. kerosene	4.625– 4.75	4.75	4.75 – 4.875
KANSAS (F. O. B. refinery Kansas destination)			
§1-43 w.w. kerosene	4.50 – 5.00	4.50 – 5.00	4.75 – 5.25
§2-44 w.w. kerosene	5.50 – 5.625	5.50 – 5.625	5.625– 5.75
NORTH TEXAS			
§0-42 w.w. kerosene	†4.00	†4.00	†4.25
§1-43 w.w. kerosene	†4.00 – 4.25	†4.125– 4.25	†4.25 – 4.375
NORTH LOUISIANA (For Louisiana and differential territory destination)			
§1-43 w.w. kerosene	4.75 – 5.00	4.75 – 5.00	5.00
ARKANSAS (For intrastate shipment only)			
§2-44 kerosene	5.00 – 5.25	5.00 – 5.25	5.25
ARKANSAS (F. O. B. Arkansas refineries for interstate shipment)			
§2-44 kerosene	5.00	5.00	5.00
CALIFORNIA			
§8-40 w.w. kerosene	5.00 – 5.50	5.00 – 5.25	5.00 – 5.50

NEUTRAL OIL

PENNSYLVANIA Vis.		(Viscosity at 70°F.)	
200 No. 3 Assoc. Filt.	33.00 –34.00	33.00 –34.00	33.00 –34.00
180 No. 3 Assoc. Filt.	30.00 –32.00	29.50 –31.00	31.00 –32.00
150 No. 3 Assoc. Filt.	27.00 –27.50	26.50 –27.50	27.00 –27.50
	(Non Viscous)		
34 Grav. 330-340 Flash	7.25 – 7.75	7.25 – 7.50	7.25 – 7.50
36 Min. Neut. 300-305 Flash	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
**OKLAHOMA Vis. Color		(Viscosity at 100°F.)	
100—No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150—No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150—No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180—No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200—No. 3	9.50 –11.00	9.50 –11.00	9.50 –11.00
200—No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200—No. 5	8.50 –10.50	8.50 –10.50	8.50 –10.50
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.50 –14.00	13.50 –14.00	14.00
240—No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280—No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280—No. 4	15.25	15.25	15.25
280—No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300—No. 5-6	17.00	17.00	17.00
**GULF COASTAL Vis. Color		(Viscosity at 100° F., pour test 0)	
100—No. 2 Unfilt. Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200—No. 3 Unfilt. Pale	9.00 –10.00	9.00 –10.00	9.00 –10.00
300—No. 3 Unfilt. Pale	10.00 –11.00	10.00 –11.00	10.00 –11.00
500—No. 3½ Unfilt. Pale	12.00 –13.00	12.00 –13.00	12.00 –13.00
750—No. 4 Unfilt. Pale	14.00 –15.00	14.00 –15.00	14.00 –15.00
200—No. 5½ Red Oil	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
300—No. 5½ Red Oil	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
500—No. 6 Red Oil	9.50 –10.50	9.50 –10.50	9.50 –10.50
750—No. 6 Red Oil	12.00 –13.00	12.00 –13.00	12.00 –13.00
**CALIFORNIA Vis. Color		(Viscosity at 100°F.)	
100—No. 2	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
100—No. 3	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
200—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
300—No. 3	10.50 –11.00	10.50 –11.00	10.50 –11.00
450—No. 3-3½	13.00 –13.50	13.00 –13.50	13.00 –13.50
550—No. 3-3½	14.50 –15.00	14.50 –15.00	14.50 –15.00
600—No. 3-3½	15.00 –15.50	15.00 –15.50	15.00 –15.50
100—No. 5	6.50	6.50	6.50
200—No. 5	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300—No. 5	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
400—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
500—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
600—No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
700—No. 7	14.00 –14.50	14.00 –14.50	14.00 –14.50

CYLINDER STOCKS

**OKLAHOMA			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	23.00 –25.00	23.00 –25.00	23.00 –25.00
600 E St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	9.00 –10.00	9.00 –10.00	9.00 –10.00
600 St. Ref. Dark Green	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	9.00 –10.00	9.00 –10.00	9.50 –10.50
650 Steam Refined	11.25 –12.25	11.25 –12.25	11.50 –12.50
600 Flash	16.00 –16.50	16.00 –16.50	16.00 –16.50
625 Flash	26.00 –27.00	27.00 –27.50	27.00 –27.50
600 Warren E	17.00 –19.00	17.00 –19.00	17.00 –19.00
600 Oil City E	15.00 –16.00	15.50 –16.50	15.50 –16.50
600 D Filtered	24.50 –25.50	24.50 –25.50	24.50 –25.50
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210°, 540-550 flash, No. 8 color	28.00 –29.50	28.00 –29.50	29.00 –30.00
40-50 p.p., 140-150 vis. at 210, 540-550 flash, No. 6-6½ color diluted	26.00 –27.50	26.00 –27.50	27.00 –28.00

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher)

†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

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Make of Truck..... Size Tank Required.....

Other equipment on which you may send prices.....

Name..... Address.....

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices Jan. 23	Prices Jan. 16	Prices Jan. 9
Per Pound, New York			
122-124 white crude scale	3.00 – 3.25	3.00 – 3.25	3.00 – 3.125
124-126 white crude scale	3.125– 3.25	3.125– 3.25	3.00 – 3.125
OKLAHOMA			
**124-126 White Crude Scale	2.75 – 3.00	2.50 – 2.75	2.50 – 2.75
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
30-34 fuel oil	4.625– 4.75	4.625– 4.75	4.625– 4.75
28-32 fuel oil	4.625– 4.75	4.625– 4.75	4.625–4.75
OKLAHOMA			
38-40 straw distillate	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375
36-38 straw distillate	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
*32-36 gas oil, straw	†2.625– 2.75	†2.50 – 2.75	†2 50 – 2.75
*32-36 dark gas oil	2.50	2.375– 2.50	2.375– 2.50
28-30 fuel oil (in bbls.)	$0.925– 0.975	$0.925– 0 975	$0.925– 0.975
26-28 fuel oil (in bbls.)	$0.85 – 0.90	$0.85 – 0.90	$0.85 – 0 90
24-26 fuel oil (in bbls.)	**$0.80	**$0.80	**$0 80
22-26 fuel oil (in bbls.)	**$0.75– 0.775	**$0.75– 0.775	**$0.75– 0 775
18-22 fuel oil (in bbls.)	**$0.70– 0.725	**$0.70– 0.725	**$0.70– 0.725
16-18 fuel oil (in bbls.)	**$0.70	**$0.70	**$0.70
14-16 fuel oil (in bbls.)	**$0.70	**$0.70	**$0.70

*Zero cold test low flash goods sell for ¼ cent more per gallon.
Zero cold test fuel oils sell for 5 to 15 cents more per bbl.

KANSAS (F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.50— 3.75	3.50 – 3.75	3.50 – 3.75
36-38 straw distillate	3.25	3.25	3.25
32-36 gas oil	2.75 – 2.875	2.75 – 2.875	2.75 – 2.875
24-26 fuel oil	*$0.90 – 0.95	*$0.90– 0.95	*$0.90 – 0.95
18-22 fuel oil	*$0.85	*$0.85	*$0.85
NORTH TEXAS			
38-40 straw distillate	3.125– 3.25	3.125– 3.25	3.125– 3.25
32-36 gas oil, cracked	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
32-36 gas oil, uncracked	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
24-26 fuel oil (in bbls.)	$0.70	$0.70	$0.70

GULF COASTAL	Prices Jan. 23	Prices Jan. 16	Prices Jan. 9
Fuel (in bbls.)	$1.40 –$1.50	$1.40 – 1.50	$1.40 –$1.50
Gas oil	4.375– 4.50	4.375– 4.50	4.375– 4 50
NORTH LOUISIANA (For Louisiana and differential territory destination)			
32-36 gas oil, dark	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
32-36 gas oil, straw	3.125– 3.25	3.125– 3.25	3.125– 3.25
16-20 fuel oil (in bbls.)	$0.975– 1.00	$0.975– 1.00	$1.00
ARKANSAS (For Arkansas intrastate shipment only)			
32-36 gas oil, straw	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
32-36 gas oil	3.00	3.00	3.00
28-32 gas oil	2.75	2.75 – 3.00	2.75 – 3.00
ARKANSAS (F. O. B. Arkansas refineries for interstate shipment)			
28-32 gas oil	2.50 – 2.75	2.75	2.75
Smackover crude fuel	$0.975– 1.00	$0.975– 1.00	$0.975– 1.00
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.60 –$0.75	$0.60 –$0.75	$0.60 –$0.75
14-18 Bunker oil (in bbls.)	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
30-34 gas oil (in bbls.)	$1.05 –$1.10	$1.05 –$1.10	$1.05 –$1.10
27 Plus Diesel oil (in bbls.)	$0.90 –$1.00	$0.90 –$1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In cents per pound in tank cars; in barrels, in car lots ¾c per pound more.)			
Snow White	8.875	8.875	8.875
Lily White	7.875	7.875	7.875
Cream White	6.875	6.875	6.875
Light Amber	3.875	3 875	3.875
Amber	3.50	3.50	3.50
Red	3.25	3.25	3.25
Green No. 5 color	2.625	2.625	2.625

**PETROLEUM COKE

Oklahoma

(Per ton in car lots)

Lump	$5	$5	$5
Still run	$3	$3	$3
Breeze	$2	$2	$2

†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

(*Continued from Page* 105)

storage. A few of the larger refiners continued to put the bulk of their production in storage rather than sell at present price levels.

An export company was reported to have bought a small quantity of 41-43 gravity kerosene the first of the week in north Texas but the amount and price was not revealed. A Louisiana refiner was figuring with an exporter on a quantity of kerosene but as far as could be learned the deal was still pending at the end of the week.

No changes were noted this week in either demand of the prices on distillates and gas oils. Both continued to move briskly on contracts, with zero cold test products in excellent demand.

Fuel oils in Oklahoma continued to be comparatively active, especially the low cold tests grades. Prices showed no changes during the week. The trade here has expressed more optimism lately over the fuel oil situation in Oklahoma, but has not lost sight of the north Texas situation.

Oklahoma neutral oils and cylinder stocks were unchanged in price. Several refiners report being sold up on wax for the remainder of the month, and prices this week were advanced approximately 0.25 cent a pound.

White, Yellow Crude Scale In Good Demand

NEW YORK, Jan. 21.—Wax markets at New York were a shade tighter this week. A fairly active demand from European buyers for white crude scale caused several suppliers to advance their prices 0.125 cent for this grade. Yellow crude scale also was in good demand. The call for fully refineds was nominal, but prices were without material change.

One large United Kingdom buyer reported purchases this week totaling approximately 375 tons of white crude scale at 3 cents. Goods at this price was fairly scarce, however, and the majority of sellers were asking 3.125 to 3.25 cents for 122-124 and 124-126 A.m.p. and reporting a fair volume of sales.

The trading in yellow crude scale which was relatively heavy was largely at 2.875 cents a pound and toward the end of the week most sellers of this commodity advanced their prices to 3 cents.

The New Orleans market was comparatively quiet. There has been some demand noted for February wax but for the most part sellers have been reluctant to offer freely over this period as yet. White crude scale was largely quoted at 3.125 cents although it was indicated in some quarters that 3 cents might be done. The fully refined grades were generally unchanged.

Export Lube Market Continues Quiet

NEW YORK, Jan. 21.—The export demand for lubricating oils continued generally slow this week and few price changes were noted in any of the various markets in this country.

Pennsylvania steam refined oils fluctuated slightly, the 600 grade being offered in some quarters at 0.5 cent lower than a week ago and several suppliers quoted 0.5 cent higher for 650 goods. A few small sales of 600 steam refined were made at 16 cents a gallon in barrels at New York. Warren E, 600, sold 0.5 cent lower at 23.50 cents a gallon.

The South Texas market was quiet with prices generally unchanged.

Correction

In the refinery market table, page 109 of the Jan. 18 issue of NATIONAL PETROLEUM NEWS, Arkansas (intrastate) gas oil prices were transposed. 32-36 gas oil should have been 3 cents for the three weeks shown, and 28-32 gas oil should have been 2.75 to 3 cents. Prices are corrected in this issue.

Chicago Demand and Prices Generally Unchanged

Staff Special
CHICAGO, Jan. 21

THE Chicago resale market passed the week without any unusual developments. Demand for most products was about the same as last week with no great amount of buying reported. Several of the trade said their gasoline business was fair this week because the weather was pleasant for motoring. However, outside of the cities and off the main highways the roads throughout the territory were not good.

U. S. Motor gasoline prices were fractionally lower at the beginning of this week with most sales recorded at 5.625 to 5.875 cents as against a range of 5.625 to 6 cents at close of the previous week. But several of the trade reported a slight strengthening of U. S. Motor during the closing days of this week. Some marketers said they had a harder time buying for resale at 5.50 cents and one refiner, who has been selling some gasoline direct to the trade at 5.50 cents, advanced his price to 5.625 cents.

Higher gravity gasolines were in fairly good demand. The 60-62, 437 e.p. grade opened at 5.875 to 6 cents Monday after moving at 5.875 to 6.25 cents all last week. Gasoline, 60-62, 400 e.p. grade moved mostly at 6.25 to 6.50 cents throughout the week. The 64-66, 375 e.p. goods sold at 6.75 to 7 cents Thursday after moving at 6.875 to 7 cents earlier in the week.

Kerosene demand continued at about the same rate as for the past two weeks. Prices on 41-43 w.w. were fractionally lower on Monday, with most sales at 4.125 to 4.375 cents. Sales were reported at these figures until the close of business Saturday.

Distillate demand was steady throughout the week. Prices of 38-40 straw remained unchanged at 3.25 to 3.375 cents.

Gas oils, especially those grades with a low cold test, were in steady demand all week. Several of the trade reported an increased number of inquiries following the drop in temperature Friday morning. Ordinary dark 32-36 gas oil moved most of the week at 2.50 cents. Prices were fractionally higher Saturday when most of the trade was getting 2.50 to 2.625 cents. Some goods continued to move at 2.375 cents. Gas oil, 32-36 gravity, with a zero cold test moved at 2.875 to 3 cents all week. The 32-36 straw zero gas oil was 3.125 to 3.25 cents. Low cold test gas oils were said to be comparatively scarce.

Low cold test fuel oils also were scarce this week as a large number of refiners are sold up to the last of January. Some sellers reported a goodly number of inquiries from industrial concerns while others reported only routine buying.

Demand for fuel oil was steady throughout the week. A wide range of prices was reported on all grades. The 28-30 fuel sold at $1.00 to $1.075 most of the week after opening Monday at $1.00 to $1.15. Quotations of $0.975 and $1.10 were heard, depending on the cold test. Fuel oil of 24-26 gravity moved mostly at $0.80 to $0.85 with 22-26 at $0.80 to $0.825. Most sales of 18-22 fuel were at $0.775 to $0.80 Monday and at $0.775 to $0.825 from Tuesday on. Quotations on Smackover crude fuel continued mostly at $1.00 to $1.025.

Temperatures will remain close to the seasonal normal throughout Standard of Indiana territory next week. One or two precipitation periods are likely.

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Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of Indiana—T. w. and s. s. prices gasoline advanced 2 cents, Decatur, to 15.5 and 17.5 cents respectively, including 2 cent tax, **Jan. 7.**

Standard of Louisiana—S. s. price only of gasoline reduced 1 cent, New Orleans, to 17.5 cents, including 2 cent state tax, **Jan. 17.** T. w. and s. s. prices gasoline advanced 2 cents, Memphis, to 17 cents and 18.5 cents respectively, including 3 cent tax, **Jan. 16.**

* * *

Kerosene Changes

Standard of New York—T. w. price of kerosene at Rochester has been in error at 13 cents since Dec. 10. On that date kerosene was cut 1 cent in Rochester district, making t. w. price 12 cents.

Los Angeles Shipments

LOS ANGELES, Jan. 20.—Nineteen tankers carried a total of 1,343,573 barrels, or a daily average of 191,939 barrels, of crude and other petroleum products, to points outside of Pacific coast trade territory, week of Jan. 8 to 14, inclusive. This is an increase over week ended Jan. 7, when 17 tankers carried 903,794 barrels, or a daily average of 129,113 barrels.

Over half the total movement was fuel—727,345 barrels, and only one cargo of 78,410 barrels of distillate left the harbor, going to Atlantic foreign. The total movement included 57,953 barrels of crude, 727,345 barrels of fuel, 322,074 barrels of gasoline, 70,914 barrels of Diesel, 78,410 barrels of distillate and 86,877 barrels of kerosene. Pacific foreign points drew 57,953 barrels of crude, 553,226 barrels of fuel, 67,001 barrels of gasoline, 86,877 barrels of kerosene and 7,584 barrels of Diesel. Products going to Atlantic domestic included 78,119 barrels of fuel, 113,073 barrels of gasoline and 78,410 barrels of distillate. The remainder of the movement went to Atlantic foreign.

Eastern Kentucky Refinery Market

ASHLAND, Jan. 23.—All gas and fuel oils in eastern Kentucky market are up ¼ cent. Prices of other products are unchanged over last Monday. No 24-26 fuel oil is available for spot shipment. Jan. 23 prices are:

60-62, 425 e. p. gasoline	8.625
64-66, 375 e. p. gasoline	8.875
68-70, 360 e. p. gaso'ine	9.25
41-43 w. w. kerosene	6.25
34-36 gas oil	5.00
32-34 gas oil	4.75
30-32 fuel oil	4.50
28-30 fuel oil	4.25
26-30 fuel oil	4.00
24-26 fuel oil	None available

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

(As posted by principal marketing companies)

(OIL PRICE HANDBOOK has t.w. and s.s. markets for whole year arranged for quick reference)

These Prices In Effect January 23, 1928

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	16	2	18	20	14
Newark, N. J.	16	2	18	20	14
Annapolis, Md.	16	4	20	23	12
Baltimore, Md.	16	4	20	23	10
Cumberland, Md.	16	4	20	23	14
Washington, D. C.	16	2	18	21	12
Danville, Va.	16	4½	20.5	*	14
Norfolk, Va.	16	4½	20.5	23.5	12
Richmond, Va.	14	4½	18.5	21.5	14
Roanoke, Va.	16	4½	20.5	23.5	14
Petersburg, Va.	16	4½	20.5	23.5	14
Charleston, W. Va.	16	4	20	23	14
Keyser, W. Va.	16	4	20	*	14
Parkersburg, W. Va.	13	4	17	20	14
Wheeling, W. Va.	16	4	20	23	14
Charlotte, N. C.	16	4	20	23	14
Hickory, N. C.	16	4	20	23	14
Mt. Airy, N. C.	16	4	20	23	14
Salisbury, N. C.	16	4	20	23	14
Charleston, S. C.	15	5	20	23	14
Columbia, S. C.	15	5	20	23	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

*New York City	17	0	17	21	15
Albany, N. Y.	13	0	13	15	15
Buffalo, N. Y.	13	0	13	16	14
†Rochester, N. Y.	13	0	13	16	12
Syracuse, N. Y.	15	0	15	15	15
Boston, Mass.	17	0	17	15	15
Augusta, Me.	17	4	21	21	15
Manchester, N. H.	17	4	21	23	15
Burlington, Vt.	17	3	20	22	15

*In steel barrels.

†It is reported that S. O. New York is selling a second grade of gasoline at Rochester, 4c below the above posted prices which apply on its Socony grade.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	*22	14
Philadelphia, Pa.	15	*	15	*21	14
Allentown, Pa.	16	*	16	*22	14
Erie, Pa.	12	*	12	*18	14
Scranton, Pa.	16	*	16	*22	14
Altoona, Pa.	16	*	16	*22	14
Dover, Del.	16	3	19	22	14
Wilmington, Del.	16	3	19	22	14
Providence, R. I.	15	2	17	17	15
Boston, Mass.	15	0	15	15	15
Springfield, Mass.	16	0	16	16	15
Worcester, Mass.	15	0	15	15	15
Hartford, Conn.	16	2	18	18	15
New Haven, Conn.	16	2	18	18	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	13	5	18	21	15.5
Louisville, Ky.	13	5	18	21	15
Covington, Ky.	14	5	19	22	15.5
Clarksdale, Miss.	13	4	17	20	11.5
Gulfport, Miss.	††14.5	4	††18.5	21.5	14
Jackson, Miss.	13	4	17	20	13.5
Natchez, Miss.	12.5	4	16.5	19.5	14
Vicksburg, Miss.	12.5	4	16.5	19.5	14
Birmingham, Ala.‡	14	4	18	21	14.5
Mobile, Ala.‡	14	4	18	21	14
Montgomery, Ala.*‡	12	4	16	16	15.5
Atlanta, Ga.	13	4	17	19	†14
Augusta, Ga.	15	4	19	22	†16.5
Macon, Ga.	12	4	16	19	†13.5
Savannah, Ga.	13	4	17	19	†14.5
Jacksonville, Fla.°	13	5	18	21	11.5
Miami, Fla.°	15	5	20	23	14.5
Tampa, Fla.°	13	5	18	21	13
Pensacola, Fla.°	**14	5	**19	22	13

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

‡Alabama gasoline prices include 1/40 of 1c inspection fee. Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

°Florida gasoline prices include ⅛c inspection fee.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Chicago, Ill.	14	2	16	18	12
Decatur, Ill.	13.5	2	15.5	17.5	12.1
E. St. Louis, Ill.	13.1	2	15.1	17.35	11.2
Joliet, Ill.	14.4	2	16.4	18.4	12.3
Peoria, Ill.	10	2	12	12	12.1
Quincy, Ill.	14.2	2	16.2	18.2	11.9
Indianapolis, Ind.	11.2	3	14.2	15.2	13.2
Evansville, Ind.	14	3	17	19	13
South Bend, Ind.	14.4	3	17.4	17.4	13.4
Detroit, Mich.	12.8	3	15.8	17.8	13.7
Grand Rapids, Mich.	11	3	14	16	13.6
Saginaw, Mich.	14.9	3	17.9	19.9	13.8
Green Bay, Wis.	14.6	2	16.6	18.6	12.4
Madison, Wis.	14.3	2	16.3	18.3	12.1
Milwaukee, Wis.	14.1	2	16.1	18.1	11.9
La Crosse, Wis.	15.2	2	17.2	19.2	13
Minneapolis, Minn.	12	2	14	14	12.9
Duluth, Minn.	13.5	2	15.5	17.5	12.9
Mankato, Minn.	12.1	2	14.1	16.1	12.7
Des Moines, Ia.	11.9	3	14.9	16.9	12.3
Davenport, Ia.	12.5	3	15.5	17.5	12.3
Sioux City, Ia.	14.1	3	17.1	19.1	11.9
Mason City, Ia.	14.5	3	17.5	19.5	12.3
St. Louis, Mo.	*13.6	2	15.6	17.9	11.3
Kansas City, Mo.	†12.9	2	14.9	16.9	10.6
St. Joseph, Mo.	†12.5	2	14.5	16.5	11.2
Fargo, N. D.	13	2	15	17	14.9
Grand Forks, N. D.	17.2	2	19.2	21.2	15.2
Minot, N. D.	16.9	2	18.9	20 9	14.9
Pierre, S. D.	15.5	4	19.5	21.5	13.9
Huron, S. D.	15.5	4	19.5	21.5	13.9
Wichita, Kans.	10.8	2	12.8	12.8	10.8
Bartlesville, Okla.	12.8	3	15.8	17.8	10.8

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline outside the city of Chicago is 1c for 50 gals. or more at one delivery; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

In Chicago, above discounts apply, except that minimum required quantity to get the 1c discount is 100 gals., instead of 50 gals. This 1c discount applies on quantities of 100 gals. and over, in addition to regular Q.D.A. discounts applying thru rest of territory, as stated above.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month, or 2400 gals. per year.

Discount on kerosene is 1c on 50 gal. dumps throughout territory.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. NEBRASKA

Omaha, Neb.	14.25	2	16.25	16.25	12.25
McCook	12.75	2	14.75	16.75	11.50
Norfolk	14.75	2	16.75	18.75	12.75
North Platte	15.75	2	17.75	19.75	13.50
Scottsbluff	15.25	2	17.25	19.25	13.00

CONTINENTAL OIL

Denver, Colo.	13	3	16	18	12.5
Pueblo, Colo.	13	3	16	18	14.5
Grand Junction, Colo.	17.5	3	20.5	22.5	18
Casper, Wyo.	14	3	17	19	13
Cheyenne, Wyo.	15	3	18	20	14.5
Butte, Mont.	19.5	3	22.5	22.5	19
Helena, Mont.	19.5	3	22.5	24.5	19
Salt Lake City, Utah	16.5	3½	20	21	17
Boise, Ida.	19.5	4	23.5	25.5	19
Twin Falls, Ida.	19.5	4	23.5	25.5	19
Albuquerque, N. M.	16	5	21	24	17

S. O. CALIFORNIA*

Phoenix, Ariz.	19	4	23	27	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

*On Oct. 1, t.w. price at all points for spot sales, was advanced 1c. Very large portion of deliveries are under contract carrying above prices. New customers signing contracts and selling only one brand of gasoline, are given prices published in above table.

S. O. LOUISIANA

Little Rock, Ark.	11	5	16	16	11
Alexandria, La.	13	2	15	18	†14
Baton Rouge, La.	12	2	14	17	†12.5
Lake Charles, La.	13.5	2	15.5	18.5	†14
New Orleans, La.	13.5	2	*15.5	*17.5	†14
Shreveport, La.	13.5	2	15.5	18.5	†13
Lafayette, La.	13	2	15	18	†13.5
Bristol, Tenn.	16	3	19	22	14
Chattanooga, Tenn.	16.5	3	19.5	22.5	15
Knoxville, Tenn.	16.5	3	19.5	22.5	15
Nashville, Tenn.	15	3	18	21	15
Memphis, Tenn.	14	3	17	18.5	14

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax

S. O. OHIO

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W
All Ohio points	14	3	17	19	14

MAGNOLIA PETROLEUM

Muskogee, Okla.	10	3	13	16	10
Oklahoma City	10	3	13	14	10
Tulsa, Okla.	10	3	13	14	10
Fort Smith, Ark.*	13	*3	16	19	10
Little Rock, Ark.	11	5	16	16	11
Texarkana, Ark. *	12	*3	15	18	12
Dallas, Tex.	11	3	14	17	11
Fort Worth, Tex.	11	3	14	16	10
Houston, Tex.	10	3	13	15	15
San Antonio, Tex.	10	3	13	15	10
El Paso, Tex.	11	3	14	15	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 3c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M. & P. Naphtha	Cleaner Naphtha
Chicago	16	18	18
Detroit	17.7	19.7	19.7
Kansas City	†16.2	†18.2	†18.2
Milwaukee	16.7	*20.7	*20.7
Minneapolis	*20	*22	*22
St. Louis	15.9	17.9	17.9
New York	...	19	....

*Includes 2c state tax.

†Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Toronto	19.5	3	22.5	26	21
Ottawa	19.5	3	22.5	26	21
Cochrane	24.5	3	27.5	36	26
Ft. William	24.5	3	27.5	31	23.5

MANITOBA

Winnipeg	24.5	3	27.5	31	23.5

SASKATCHEWAN

Regina	27.5	0	27.5	32	26.5

ALBERTA

Edmonton	26.5	3	29.5	33	25.5
Calgary	22.5	3	25.5	29	23.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	22

QUEBEC

Montreal	20.5	3	23.5	27	21
Quebec City	22.5	3	25.5	31	23
Three Rivers	22.5	3	25.5	30	23

NEW BRUNSWICK

St. John	24.5	3	27.5	32	24
Moncton	24.5	3	27.5	32	24

NOVA SCOTIA

Halifax	24.5	3	27.5	32	24
Sydney	24.5	3	27.5	32	24

PRINCE EDWARD ISLAND

Charlottetown	24.5	3	27.5	31	24

Note: In districts surrounding these points 1c additional is added to city price.

Foreign Buyers at Gulf Active On Declining Market

Staff Special
NEW YORK, Jan. 21

THE customary procedure of foreign buyers was reversed this week when declining gasoline and kerosene prices at the Gulf brought forth a much keener interest in the market from abroad. French companies were again actively inquiring for mixed cargoes of light oil. United Kingdom and other Continental buyers also were feeling out the market and indications toward the end of this week were that considerable business would be closed in the course of the next 10 to 15 days.

Coincident with 0.25-cent reduction in prices for gasoline and kerosene in cases at New York announced by the Standard Oil Co. of New Jersey Jan. 16, the majority of suppliers made a similar reduction in bulk prices at the Gulf. In spite of the fact that two mixed cargoes sold last week at prices in line with the lows openly quoted this week, several suppliers felt the goods involved represented more or less distress offerings and were reluctant to revise their prices downward. The reductions in posted prices this week, however, established the market for gasoline and kerosene 0.25 cent lower.

Past experience has shown that ordinarily foreign buyers withdraw from the market when prices are on a downward trend, but such was not the case this time. The volume of business placed last week was not duplicated this week, but several cargoes were closed and in addition to a number of definite inquiries which suppliers held, foreign buyers who have been absent from the market for several months were on the lookout for favorable offers.

A full cargo of U. S. Motor gasoline was sold for the first time in a good many weeks. Of late the foreign inquiry has been for mixed cargoes with 64-66, 375 end point gasoline the largest item. A leading broker closed the deal involving approximately 42,000 barrels of U. S. Motor with a French buyer at 6.875 cents for January loading. The buying order specified a gasoline with 420 end point or better, and the fact that goods of this quality was purchased at 6.875 cents was surprising to a good many of the trade. Other suppliers quoted 7 cents for gasoline with 437 end point.

A 42,000 barrel cargo of 64-66, 375 end point gasoline and 44 gravity water white kerosene for Feb. 15-March 15 loading at the Gulf was closed with a French buyer by a leading Philadelphia refiner early in the week. The 64-66 sold at 8.125 cents and the kerosene at 6.50 cents. For the most part, water white kerosene was quoted at 6.625 to 6.75 cents and prime white, 5.625 to 5.75 cents.

Among the more important definite inquiries for gasoline and kerosene in the market, the following were still pending at the close of business today:

United Kingdom buyer—75,000 barrels of U. S. Motor and 64-66, 375 end point gasoline, and water white kerosene for March shipment from the Gulf.

United Kingdom buyer—Three mixed cargoes for March, April and May shipment, respectively, from the Gulf.

French buyer—Approximately 62,000 barrels of gasoline and kerosene for February loading at the Gulf.

Roumanian buyer—25,000 barrels of U. S. Motor and 64-66, 375 end point gasoline for Feb.-March 10 loading at the Gulf.

The Spanish Oil Monopoly also was reported to be inquiring for an approximate 50,000 barrels of 61-63, 390 end point gasoline for March shipment.

Gasoline and kerosene in cases at the Gulf likewise were lower, with U. S. Motor quoted at $1.60; 64-66, 375 end point, $1.75; water white kerosene, $1.55 to $1.60 and prime white, $1.45 to $1.50.

The sale toward the end of the week of a 50,000 barrel cargo of French specification gas oil for February shipment from north Atlantic port stimulated some interest in this market which has been virtually dead for some time past. Price governing the transaction was not divulged. Another transaction involving approximately 25,000 barrels of gas oil was nearing completion today, the broker negotiating the deal stating it would undoubtedly, be closed next Monday.

For 26-28 gravity gas oil, suppliers have quoted 4 to 4.25 cents and for 30-32 gravity goods, 4.25 cents flat.

The fuel oil market continued unchanged;

Burner Oils Active In Eastern Markets

Staff Special
NEW YORK, Jan. 21

NEAR zero weather which spread over the eastern seaboard toward the end of this week stimulated active buying in the domestic burning oil market. Gasoline markets in all seaboard districts were featureless and prices were without material change.

Spring-like weather has prevailed for about three weeks now and the return of winter temperatures came out of a clear sky and caught a good many small distributors with relatively low stocks of burning oil. A heavy demand for rush shipments resulted. Distress offerings which have been numerous recently were snapped up quickly and the market assumed a much brighter aspect as the week ended.

U. S. Motor gasoline at 7.75 cents a gallon in tank cars appeared in larger volume at Bayonne this week. It was not sufficient, however, to be considered a factor in the market other than to offset the volume of goods moving at 8.25 cents and level out the general going market to 8 cents.

A spread of 8 to 8.25 cents was quoted for U. S. Motor at Philadelphia this week against 8.25 cents flat a week ago. A leading refiner in this market reported taking on a fair volume of business at the lower price. U. S. Motor at 7.75 cents was not a factor in the Philadelphia market other than that this price was being made to resale agents.

The New England market was generally unchanged. The two cent reduction in service station prices at Boston made by the Standard Oil Co. of New York a week ago today, and met by other large distributors Monday, did much toward stabilizing retail marketing conditions in New England. The posted tank wagon at Boston was unchanged at 17 cents, or two cents above service station. Tank wagon remained more or less of a figurehead, as one New England refiner expressed it, inasmuch as deliveries were still being made to retail distributors at as much as 7 cents under the posted market.

Kerosene markets were generally unchanged with demand from the jobbing trade relatively quiet. The Philadelphia market was the only one in which any material change was noted. The top price quoted for water white goods was 7 cents this week and one refiner was offering this grade at 6.75 cents, against a 7 to 7.50 cent market last week.

Grade C bunker oil which has been offered recently at as low as $1.10 and $1.20 in the New York market disappeared and by the end of this week, the majority of sellers were quoting $1.35, the posted price of the Standard Oil Co. of New Jersey.

Several large contracts with trans-Atlantic steamship companies extended for three years, beginning with 1929, were made known this week. The price basis on the extensions for all lines, International Mercantile Marine excepted, was understood to be a maximum of $1.40 a barrel, or the same price in effect on 1928 contracts.

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f.o.b. refinery or seaboard terminal, represent majority of quotations and sales.)

	Jan. 23	Jan. 16	Jan. 9
U.S. Motor gasoline, New York harbor	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
U.S. Motor gasoline, Philadelphia	8.00 – 8.25	8.25	8.25
U.S. Motor gasoline, New England	8.00	8.00	8.00
U.S. Motor gasoline, Baltimore	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
U.S. Motor gasoline, Norfolk	8.25	8.00 – 8.25	8.25
U.S. Motor gasoline, †Wilmington, N. C.	8.25	8.25	8.25
U.S. Motor gasoline, Charleston	8.00	8.00	8.00
U.S. Motor gasoline, Savannah	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
U.S. Motor gasoline, Jacksonville	7.25 – 7.75	7.25 – 7.75	7.50 – 7.75
California U.S. Motor gasoline, †New York Harbor	8.25	.....	.....
California U.S. Motor gasoline, Baltimore	8.50	8.50	8.50
California U.S. Motor gasoline, Philadelphia	8.50	8.50	8.50
Water white kerosene, New York Harbor	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
Water white kerosene, Philadelphia	6.75 – 7.00	7.00 – 7.50	7.00 – 7.50
Water white kerosene, Baltimore	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
Water white kerosene, †New England	7.25	7.50	7.50
28-34 gas oil, New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
28-34 gas oil, New England	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
38-42 furnace oil, New York harbor	6.00	6.00	6.00
36-40 furnace oil, New England	5.50 – 5.75	5.50 – 6.00	5.50 – 6.00
Grade C bunker oil, New York harbor	$1.35	$1.20 – 1.35	$1.35
Grade C bunker oil, New England	$1.35	$1.35	$1.35 –$1.40
Diesel oil, New York harbor	$2.10	$2.10	$2.10
MEDICINAL OILS			
Russian 885-890 s.g., 325-330 vis.	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
Russian 870-875 s.g., 150-155 vis.	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
Russian 860-865 s.g., 80-85 vis.	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

†Only one refiner quoting.

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	Jan. 23	Jan. 16	Jan. 9
U. S. Motor gasoline	23.65	23.90	23.90
43-45, 150 w.w. kerosene	17.90	18.15	18.15
42-44, 110 s.w. kerosene	16.90	17.15	17.15
CYLINDER OILS			
Bright stock, dark	34.00 –35.00	34.00 –35.00	34.00 –35.00
600 D filtered	30.00 –31.00	30.00	30.00
600 Warren E filtered	23.50 –25.00	24.00 –25.00	24.00 –25.00
600 s.r. unfiltered	16.00 –17.00	16.50 –17.00	17.00
650 s.r. unfiltered	18.50 –19.50	18.50 –19.00	18.50 –19.00
600 flash s.r.	20.00 –21.00	20.00 –21.00	20.00 –21.00
630 flash, s.r.	33.00	33.00	33.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00	20.00	20.00
250 vis. No. 6 color	19.00	19.00	19.00
200 vis. No. 6 color	18.50	18.50	18.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	24.00	24.00	24.00
180 vis. No. 3¼ color	20.00	20.00	20.00
100 vis. No. 2¼ color	15.75	15.75	15.75
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	35.00	35.00	35.00
500 vis. No. 6½ color	33.00	33.00	33.00
400 vis. No. 7¼ color	31.00	31.00	31.00
300 vis. No. 6 color	30.00	30.00	30.00
200 vis. No. 3¼ color	24.00	24.00	24.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)

WHITE CRUDE SCALE (In barrels)

	Jan. 23	Jan. 16	Jan. 9
122-124 A.m.p.	3.00 – 3.25	3.00 – 3.125	3.00 – 3.125
124-126 A.m.p.	3.00 – 3.25	3.00 – 3.125	3.00 – 3.125
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	3.75 – 4.00	3.75 – 4.00	3.75 – 3.875
125-127 A.m.p.	3.75 – 4.00	3.75 – 4.00	3.75 – 3.875
128-130 A.m.p.	4.00 – 4.125	4.00 – 4.125	4.00
130-132 A.m.p.	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
133-135 A.m.p.	5.00 – 5.25	5.00	5.00
135-137 A.m.p.	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
YELLOW CRUDE SCALE			
124-126 A.m.p.	2.875	2.75	2.625

***Prices nominal.**

Gulf Export Market

(F.O.B. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over, except where otherwise noted.)

	Jan. 23	Jan. 16	Jan. 9
GASOLINE			
U. S. Motor	6.875– 7.00	6.75 – 7.00	7.25
60-62, 400 e.p.	*7.625	*7.75	*8.00
61-63, 390 e.p.	7.875	7.875– 8.00	8.25
64-66, 375 e.p.	8.125	8.125– 8.25	8.50
U. S. Motor, cases (cargoes)	$1.60	$1.65	$1.65
64-66, cases (cargoes)	$1.75	$1.80	$1.80
***Nominal.**			
KEROSENE			
44 water white	6.50 – 6.75	6.75	7.00
41-43 prime white	5.50 – 5.75	5.75	6.00
Water white, cases (cargoes)	$1.55 –$1.60	$1.60	$1.60
Prime white, cases (cargoes)	$1.45 –$1.50	$1.50	$1.50
DOMESTIC GAS & BUNKER OILS			
*26-28 gas oil	4.00 – 4.25	4.00 – 4.25	4.25
*30-32 gas oil	4.25	4.25	4.25
Grade C bunker oil	$1.15	$1.15	$1.15 –$1.20
Grade C bunker oil, cargoes	$0.90 –$0.95	$0.90 –$0.95	$0.95 –$1.00

***Translucent thru neck of 4 oz. bottle.**

MEXICAN CRUDE AND BUNKER OILS (F.O.B. Steamer, Tampico)

Heavy Panuco crude taxes to be paid	$1.10	$1.10	$1.10
Grade C bunker oil, for bunkering purposes, taxes paid	$1.35	$1.35	$1.35

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100° F.; cold test 0)

(Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	6.00	6.00	6.00
200 vis. No. 3 unfiltered pale	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
300 vis. No. 3 unfiltered pale	8.875– 9.25	8.875– 9.25	8.875– 9.25
500 vis. No. 3 unfiltered pale	11.00 –11.25	11.00 –11.25	11.00 –11.25
200 vis. No. 5½ red oil	6.875– 7.25	6.875– 7.25	6.75 – 7.25
300 vis. No. 5½ red oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
500 vis. No. 6 red oil	9.00 – 9.625	9.00 – 9.625	9.00 – 9.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Jan. 23	Jan. 16	Jan. 9
Gasoline, U. S. Motor, 53-55 Gravity	6.00 – 6.50	6.00 – 7.00	6.00 – 6.50
Gasoline, U. S. Motor, blends and special cuts	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
Gas Oil, 30-34, per barrel	$1.05 –$1.10	$1.05 –$1.10	$1.05 –$1.10
Diesel Oil, 27 plus, per barrel	$0.95 –$1.05	$0.95 –$1.05	$0.95 –$1.05
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18, per barrel	$0.70 –$1.00	$0.70 –$1.00	$0.75 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.50 – 5.00	4.50 – 4.75	4.50 – 5.00
Cased Goods			
Gasoline, U. S. Motor	$1.65 –$1.75	$1.65 –$1.75	$1.65 –$1.75
Kerosene, 38-40 w.w., 125-150 flash	$1.35 – 1.45	$1.35 – 1.45	$1.30 –$1.45

Crude Oil Prices, as Posted by Major

(Crude prices for years 1924-1925-1926-1927 in

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$2.80
Bradford District Oil in National Transit Lines (Bradford District)	2.80
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	2.65
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	2.65
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	2.60
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.35
Keister Grade in National Transit Lines (Butler Co.)	1.10
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.50
Corning Grade in Buckeye Pipe Lines (Ohio)	1.55
Corning, O. heavy grade	1.45
*Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.60
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

*Somerset oil run prior to Oct. 1922, takes price of 6 cents lower than above quotations.

(Posted by Stoll Oil Refining Co.)

Mid City, Ky., oil in Stoll lines.....$1.50

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective March 14, 1927

Wooster	$1.57	Plymouth	$1.33
Lima	1.71	West. Kentucky	1.33
Waterloo	1.20	*Canadian Petro.	2.11
Indiana	1.48	*Oil Springs	2.18
Princeton	1.60	*Posted by Imperial Oil Ltd.	
Illinois	1.60		

OKLAHOMA, KANSAS And NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective March 12, 1927

28-28.9	$1.12	35-35.9	$1.26
29-29.9	1.14	36-36.9	1.28
30-30.9	1.16	37-37.9	1.30
31-31.9	1.18	38-38.9	1.32
32-32.9	1.20	39-39.9	1.34
33-33.9	1.22	40-40.9	1.36
34-34.9	1.24	41-41.9	1.38
42-42.9	$1.40	48-48.9	$1.52
43-43.9	1.42	49-49.9	1.54
44-44.9	1.44	50-50.9	1.56
45-45.9	1.46	51-51.9	1.58
46-46.9	1.48	52 and above	1.60
47-47.9	1.50		

Above schedule met on March 12, by Gulf, Mid-Continent Pet. Corp., and Empire; by Carter, Humble and The Texas Co. on March 14.

Humble Oil & Refining Co. Prices
(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

March 14, same schedule as Prairie in above fields, except these grades posted Nov. 16:

Below 25	$0.90	26-26.9	$1.08
25-25.9	1.06	27-27.9	1.10
Mirando, Tex.			$1.00

Magnolia Petroleum Co.
(In Oklahoma, Kansas and North and East Central Texas)

Effective Sept. 14, Magnolia posted same price schedule as Prairie in above fields and in Panola Co. except that Magnolia is paying $1.05 for all oil below 30 gravity.

Glasscock and Howard Counties	$0.60
Chalkfield (Howard Co.)	$0.80
Iatan district	$0.93
Corsicana heavy	$1.00

Carter Oil Co.
(Oklahoma and Kansas)

March 14, same schedule as Prairie

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective Aug. 23

Hutchinson Carson and Wheeler Counties..$0.75
Pampa, Gray County, Effective March 14:

28-28.9	$ .80	37-37.9	$ .98
29-29.9	.82	38-38.9	1.00
30-30.9	.84	39-39.9	1.02
31-31.9	.86	40-40.9	1.04
32-32.9	.88	41-41.9	1.06
33-33.9	.90	42-42.9	1.08
34-34.9	.92	43-43.9	1.10
35-35.9	.94	44 and above	1.12
36-36.9	.96		

WEST TEXAS

Humble Oil & Refining Co.

Effective Aug. 23

Crane, Upton, Crockett and Pecos Counties...$0.60

NORTH LOUISIANA — ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana
Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto

Effective March 14, 1927

Below 28	$1.10	40-40.9	$1.36
28-28.9	1.12	41-41.9	1.38
29-29.9	1.14	42-42.9	1.40
30-30.9	1.16	43-43.9	1.42
31-31.9	1.18	44-44.9	1.44
32-32.9	1.20	45-45.9	1.46
33-33.9	1.22	46-46.9	1.48
34-34.9	1.24	47-47.9	1.50
35-35.9	1.26	48-48.9	1.52
36-36.9	1.28	49-49.9	1.54
37-37.9	1.30	50-50.9	1.56
38-38.9	1.32	51-51.9	1.58
39-39.9	1.34	52 and above	1.60

*Smackover, below 24	$0.85
* do 24 and above	1.00
Bellevue	1.25
Cotton Valley	.85
**Urania, La	.75
†East El Dorado	1.00

**Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

*Smackover prices posted on Nov. 21 by S. O La. Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and Magnolia Pet Co.; on Nov 19 by La. Oil Refg. Corp.; on Nov. 23 by The Texas Co.

STEPHENS, ARKANSAS

Atlantic Oil Producing Co. and Louisiana Oil Refining Corp.

Below 28	$1.00	30-30.9	$1.06
28-28.9	1.02	31-31.9	1.08
29-29.9	1.04	32 and above	1.10

GULF COASTAL

Posted by Humble Oil & Refining Co

Effective March 14

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

California Prices Steady; Demand Is Quiet

LOS ANGELES, Jan. 20

MORE spot natural gasoline is being offered in California markets. During last week one lot of natural gasoline was offered at less than 8 cents, although most of the spot goods is bringing 8 to 9 cents. A number of contracts have expired during the past six weeks and the major companies show little disposition to renew at any price. Most of the larger companies have built up large natural gasoline productions, as they do not have to depend upon contracts for their full supply.

The export movement of gasoline is rather slow. Quotations are 6 to 7 cents. Two or three companies claim they are refusing to quote at less than 6.25 cents. Early this week a cargo of gasoline, slightly less than 400 end point, moved from Shell Co. to Sun Oil Co. at Philadelphia, and same company is moving out a cargo of similar gasoline later this month from Pan-American. The Sun Oil Co. is represented in California by the Twin States Oil Co., a subsidiary.

Gasoline for out of state movement in tank cars is 7 cents up, with a number of cars moving each week at 8 cents and above. One purchase was made last week at slightly under 7 cents, a small distress lot. Tank car shipments to points within the state rule at least 1 cent above the out of state movement.

Fuel oil is an unknown quantity. Major refiners are asking 80 cents for export movement, with no takers in the spot field. Would-be purchasers cannot buy at California prices and compete on the East Coast, and are not trying. Tank car fuel oil is 60 to 75 cents, although much fuel is moving in tank cars at 65 to 70 cents.

Asphalt for paving jobs and other uses can be bought in large quantities at $16 to $22 a ton f.o.b., according to quality. Asphalt for road paving ranges in price from $16 to $18 a ton. Higher grade asphalt is moving in small volume.

The gasoline retail situation is "muddled" considerably. Small refiners are holding firm to their prices for tank car shipments, but price cutting is fast and furious in the independent tank wagon market. Reports are floating about that some gasoline is being sold as low as 7 cents under the service station price. Quite a little is selling at 5 and 6 cents under. The low price stations are not displaying signs, other than 5 gallons for a dollar but their customers are paying from 15½ cents up to 18½ cents.

Purchasers, in All Fields (in Effect January 23)

OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co

(Effective March 14)

Grades A	$1.20	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.37	38-38.9	$1.43
36-36.9	1.39	39-39.9	1.45
37-37.9	1.41	40 and above	1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co. and Midwest Refining Co.

(Salt Creek prices effective March 12)

‡Salt Creek	29-29.9	$1.14
" "	30-30.9	1.16
" "	31-31.9	1.18
" "	32-32.9	1.20
" "	33-33.9	1.22
" "	34-34.9	1.24
" "	35-35.9	1.26
" "	36-36.9	1.28
" "	37 and above	1.30
Elk Basin		1.33
Grass Creek light		1.33
Big Muddy		$1.25
Lance Creek		1.33
Rock Creek		1.25
Mule Creek		1.30
Rex Lake		1.10
‡Osage		1.33
‡Cat Creek, Mont.		1.33
Sunburst, Mont.		1.35
‡Hogback, N. Mex.		1.38
Artesia, N. Mex.		1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Huntington Beach	Inglewood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Montebello	Coyote Hills	Santa Fe Springs	Midway, Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
16-16.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
17-17.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
18-18.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
19-19.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
20-20.9	.85	.85	.85	....	.85	....	.85	.85	...	.77	.77	.76	.76	.85	.85
21-21.9	.86	.86	.85	....	.86	....	.85	.86	.85	.79	.79	.77	.77	.85	.85
22-22.9	.87	.87	.85	....	.87	....	.85	.87	.85	.81	.81	.78	.78	.85	.85
23-23.9	.88	.88	....	....	.88	....	.85	.88	.85	.83	.83	.79	.79	.85	.85
24-24.9	.89	.89	....	....	.89	$ .89	.85	.89	.85	$ .85	.85	.80	.80	.85	.85
25-25.9	.90	.90	....	....	.90	.90	.86	.90	.86	.87	.87	.81	.81	.86	.86
26-26.9	.92	.92	....	....	.92	.92	.87	.91	.87	.89	.89	.83	.82	.87	.87
27-27.9	.94	.94	....	....	.94	.94	.88	.92	.88	.91	.91	.85	.83	.88	.88
28-28.9	.96	.96	....	....	.96	.96	.89	.93	.89	.93	.93	.87	....	.89	.89
29-29.9	.98	....	....	....	.98	.98	.90	.94	.91	.96	.96	.89	....	.91	.91
30-30.9	1.00	....	....	....	1.00	1.00	.91	.95	.93	.99	.99	.91	....	.93	.93
31-31.9	1.03	....	....	....	....	1.03	....	....	.95	1.02	1.02	.93	....	....	.95
32-32.9	1.06	....	....	....	....	1.06	....	....	.97	1.05	1.05	.95	....	....	.97
33-33.9	....	....	....	....	....	1.09	....	....	.99	1.08	1.08	.97	....	....	.99
34-34.9	....	....	....	....	....	1.12	....	....	1.01	....	1.11	.99	....	....	1.01
35-35.9	....	....	....	....	....	1.15	....	....	1.03	....	....	1.01	....	....	1.03
36-36.9	....	....	....	....	....	1.18	....	....	1.06	....	....	-	....	....	1.06
37-37.9	....	....	....	....	....	1.21	....	....	1.09	....	....	....	....	....	1.09
38-38.9	....	....	....	....	....	1.24	....	....	1.12	....	....	....	....	....	1.12
39-39.9	....	....	....	....	....	1.27	....	....	1.15	....	....	....	....	....	1.15
40-40.9	....	....	....	....	....	1.30	....	....	..	....	....	....	....	....	....
41-41.9	....	....	....	....	....	1.33	....	....	..	....	....	....	....	....	....
42-42.9	....	....	....	....	....	1.36	....	....	....	....	....	....	....	....	....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

	Jan. 23	Jan. 16
Soda Ash light 58% bags, cwt.	$1.325	$1.325
Silicate of Soda 60 deg. drums, cwt.	$1.50	$1.50
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, cwt.	$0.75	$0.75
Sal Soda wks.	$0.90-1.10	$0.90-1.10
Caustic Soda 75% solid, cwt.	$3.00	$3.00
Chloride of Lime, cwt., wks.	$2.00	$2.00
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10-4.00	.....
Liquid Chlorine, tank cars, wks., lb.	4	4
Litharge, powdered, casks, cwt.	$9.00	....

Compounders' Supplies

Vegetable Oils

Linseed carloads, spot, lb.	10.00	9.60
Tanks, spot	10.02	8.80
Soya Bean, Tanks, coast, lb.	9.75	9.75
Soya Bean, Tank Cars, N. Y., lb.	12.00	12.00

Oleic Acid

Distilled, tanks, lb.	9.00	9.00
Distilled, bbls., lb.	9.875	9.875
Saponified, tanks, lb.	9.50	9.75
Saponified, bbls., lb.	10.375	10.625

Lard Oils

Prime Winter Strained, lb.	15.75	15.75
Extra Winter Strained, lb.	13.75	13.75
Extra, lb.	13.00	13.00
Extra No. 1, lb.	12.25	12.25
No. 1, lb.	11.75	11.75
No. 2, lb.	11.25	11.25
Tallow oil, lb.	11.875	11.875

Neatsfoot Oil

Pure, bbls., lb.	15.75	16.00
Extra, bbls., lb.	12.50	12.50
No. 1, bbls., lb.	12.00	12.00
Cold Pressed, lb.	18.50	18.75

Fish Oils	Jan. 23	Jan. 16
Menhaden Oil		
Light Pressed, gal.	60	60
Light Pressed, tank cars, N. Y., gal.	51	51
White, gal.	66	66
Yellow bleached, gal.	63	63
Whale, extra winter bleached, gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y., gal.	55	56
Steam distilled turpentine, Savannah, gal.	50	48
Gum turpentine, N. Y., gal.	60.50	63.50
Gum turpentine, f.o.b. cars Savannah, gal.	55.50	59.50
Wood Rosin F, N. Y., bbl.	$8.05	$8.90
Wood Rosin F, Savn'h, bbl.	$7.25	$7.65
Gum Rosin B, N. Y., bbl.	$9.10	$9.25
Gum Rosin B, f.o.b. cars Savannah, bbl.	$8.30	$8.55
Rosin oil, pure, gal.	55	55
Rosin oil, compounded, gal.	47	47
Pine Tar		
Kiln burnt, bbl.	*$13.00	*$13.00
Retort, bbl.	$16.00	$16.00

*Nominal.

Venezuela November Shipments

LOS ANGELES, Jan. 21.—During November, total of 6,342,234 barrels of crude oil was shipped out of Venezuela. This was an increase of 318,530 barrels over the shipments in October. This brings the total Venezuelan shipments for the eleven months of 1927 to 56,501,341 barrels.

OIL STOCKS AND FINANCES

National Petroleum News

Indian Ref. Co. Issues $1,600,000 Bonds

CLEVELAND, Jan. 21.—Indian Refining Co. as of Jan. 15 issued $1,600,000 5½ per cent first mortgage serial gold bonds, maturing in blocks of $400,000 each Jan. 15 from 1929 to 1932, inclusive. Prices were such as to yield 5½ to 6 per cent. Purpose of the issue was stated by Dr. Frank Fritts, vice-president of the Indian, to be to reimburse the company for capital expenditures, to retire outstanding current indebtedness and for other corporate purposes. He wrote bankers that the company's lubricating oil plant had been rebuilt in the last year. Concerning sales and earnings he wrote:

"For the three years and 10 months ended Oct. 31, 1927, net sales of the company and subsidiary companies averaged $21,389,831.32 annually, and for the 10 months ended Oct. 31, 1927 were $16,368,720.50. Net operating earnings for the same period, available for interest, depreciation, and federal taxes, averaged $1,205,366.73, and for the 10 months ended Oct. 31, 1927 were $971,706.53. Annual interest charges on consolidated funded debt to be outstanding on completion of this financing are calculated at less than $230,000.

The issue was underwritten by Bond & Goodwin, Inc., and Freeman & Co.

22 Large Oil Companies Cut or Omit Dividends

CLEVELAND, Jan. 21.—Twenty-two large oil companies passed, or reduced regular dividends or reduced or eliminated extra payments in 1927.

Ten companies passed regular dividends. They are: Marland Oil Co., Mid-Continent Petroleum Corp., New York Transit Co., Pan American Petroleum & Transport Co., Pan American Western Petroleum Co., Prairie Oil & Gas Co., Simms Petroleum Co., and Tide Water-Associated Oil Co.

Cumberland Pipe Line Co., California Petroleum Corp., Tide Water Oil Co., and White Eagle Oil & Refining Co. reduced the amount of their regular dividends. Barnsdall Corp. changed its dividend payments from cash to stock.

Ten companies that reduced or eliminated extra payments, are: Associated Oil Co., Buckeye Pipe Line Co., Ohio Oil Co., National Transit Co., Pure Oil Co., Richfield Oil Co., Tide Water Oil Co., Shell Union Oil Corp., Standard Oil Co. of California, and Union Oil Co. of California.

Vacuum Oil Co. continued to pay $5 a share in regular and extra dividends. Chesebrough Mfg. Co. raised its regular rate and continued to pay an extra. Atlantic Refining Co. resumed dividend on its common stock after a lapse of three years. Rates were increased by the Prairie Pipe Line Co., South West Pennsylvania Pipe Lines and Southern Pipe Line Co.

New Company to Hold Turkish Pet. Stock

NEW YORK, Jan. 21.—The Near East Development Co. is being organized as a holding company to take over the stocks of five American companies in the Turkish Petroleum Co. which is directly a development of the Mosul oil fields.

The American companies that are participating in the Turkish Petroleum's Mosul project are the Standard Oil Co. of New Jersey, the Standard Oil Co. of New York, the Pan-American Petroleum & Transport Co., Atlantic Refining Co. and the Gulf Oil Corp. Each will share equally, through the new holding company, in the 23.75 per cent interest allotted to the American group in the Turkish Petroleum Co.

Three other national groups are participating in the Mosul enterprise. One is English, one French and one Belgian. In addition, C. S. Gulbenkian, an Armenian capitalist, who originally held the Mosul concession, has a 5 per cent interest.

Details as to the organization of the new American holding company have not been completed. It is expected, however, that it will have a nominal capitalization and will be directed by Officers chosen by the five American companies.

The American companies, through their interest in the Turkish Petroleum Co., will bear 23.75 per cent of the cost of the Mosul development and will share to the same extent in whatever profits may be earned. It has not been determined just what the cost of the undertaking will be, but the outlay will be large. The company is already drilling and has brought in one well.

Lion Oil Reports More Assets Sept. 30

NEW YORK, Jan. 21.—Lion Oil Refining Co. has issued a balance sheet as of Sept. 30 showing total assets of $11,091,453, compared with $10,862,992 Dec. 31. Capital and surplus, represented by 200.000 no par shares, was $6,571,199 compared with $5,842.094. Current assets Sept. 30 were $1,631,372 and current liabilities $480,755, compared with $1.680,556 and $891,757, respectively, Dec. 31. Balance sheets compare:

ASSETS

	Sept. 30, '27	Dec. 31, '26
Prop., plant, tank cars, etc.	$ 9,420,789	$ 9,144,215
Cash	240,673	255,162
Accts. and notes receivable	359,508	418,367
Inventories	1,031,191	1,007,027
Prepaid expenses	38,292	38,221
Total	$11,091,453	$10,862,992

LIABILITIES

*Capital stock and surplus	$ 6,571,199	$ 5,842,094
Gold bonds	525,000	525,000
Other money oblig., etc.	.....	226,000
Notes and accts. payable	292,472	374,755
Dividends payable	.....	150,000
Res. for accruals	188,283	367,002
Def. liabilities	26,585	.....
Depr. and depletion res.	3,487,914	3,378,141
Total	$11,091,453	$10,862,992

*Represented by 200,000 no par shares.

Doheny Interests Form Marketing Company

LOS ANGELES, Jan. 21.—The Doheny interests have recently organized the Pacific Petroleum Products Co., a Delaware corporation, for the purpose of marketing Pan-American Western products in the northern part of California and the northwest Pacific coast. The new company has an authorized capitalization of $25,000,000 and the California state corporation department has authorized the issue of 1,000,000 shares of preferred stock with a par value of $25 and 5,000,000 shares of common stock with no par value.

Frank R. Seaver, former general manager of the Huasteca Petroleum Corp., is president of the new company, with E. L. Doheny Sr., chairman of the board and E. L. Doheny Jr., vice-president. R. M. Sands is secretary.

This company is now building storage and terminal facilities at Oakland, across the bay from San Francisco.

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Jan. 21 Sales	First	High	Low	Last	Change
37⅛	27⅜	32⅝	30⅛	(sh) 922.075	N.P.	Amerada Corp.	50cQ	Jan. 31, 28	13,800	32	32½	31½	31⅞	+ ⅛
82½	35⅛	76¼	63½	(sh) 209.180	N.P.	American Republics Corp			9,800	68	69	65½	66⅜	— 1⅝
50¼	35	41¾	38⅝	$56.000 000	$ 25	Associated Oil	50cQ	Dec. 24, 27	60	40¾	40¾	39½	39¼	— ¾
131¾	104	109⅞	105¼	50 000 000	100	Atlantic Refining	$1Q	Dec. 15, 27	3,800	107	109	106	107½	+ ½
119	115¼	118¼	116	20.000 000	100	do pfd	$1.75Q	Nov. 1, 27	100	116	116	†116	116	— ¼
35¼	20¾	26½	24⅛	28,558.150	25	Barnsdall Corp. A	s62½cQ	Nov. 15, 27	10,700	26	26	25	25⅛	— ⅞
32¼	20½	25⅝	25¼	952.575	25	do B	s62½cQ	Nov. 15, 27						
32⅛	20	26⅞	24	51,524.150	25	California Petroleum	25cQ	Dec. 1, 27	50.400	25½	26⅞	24¾	26⅜	+ ⅝
96¾	65	93¼	81	20.665.000	100	General Asphalt			88,400	89	91⅝	86¾	89	— ¾
144⅞	107¼	140¼	126	6,872.200	100	do pfd	$1.25Q	Dec. 1, 27	100	133	133	133	133	— 5
175¾	60¼	156⅛	144¼	25.000.000	100	Houston Oil			44.600	148	150	†144¼	148½	— 2½
32¾	17⅝	28¼	25⅛	(sh) 500.000	N.P.	Independent Oil & Gas	25cQ	Jan. 30, 28	10.500	27⅛	27⅝	25⅞	27	+ ½
12¾	7¾	12⅝	9¾	$3,280.240	$10	Indian Refining		Dec. 15, 20	9,600	11¾	11¾	10½	11½	0
12	7¼	10⅜	8⅞	4.550.110	10	do ctfs			33.000	9¾	10	8½	9⅞	0
112	99	109	101	2,296.400	10	do pfd		Dec. 15, 21	400	106	*109	106	106¼	— ¾
37¾	20½	35⅞	33¼	(sh) 3,992.122	N.P.	Lago Oil & Transport	75cQ	Nov. 1, 27	5,300	34⅞	35	33½	35	0
18⅜	10	12¾	10½	(sh) 1,136.500	N.P.	Louisiana Oil Refining			9,500	12	12¼	11¼	11⅜	— ⅞
97	85¼	91	89½	$4,000 000	$100	do pfd	$1¾Q	Nov. 15, 27	120	90¾	91	90	90	+ ½
22¾	12	18⅛	15¾	(sh) 330.000	N.P.	Maracaibo Oil			2.800	17¼	17⅝	16½	17¾	0
58½	31	37½	34⅝	(sh) 2,316.647	N.P.	Marland Oil Co.		Mar. 31, 27	96,000	36⅛	38⅜	36⅛	36⅜	— ¾
320	200	360	320	$45,942.800	$100	Mexican Petroleum	$3Q	Jan. 20, 28						
					100	do pfd	$2Q	Jan. 20, 28						
9¼	3	5¾	4⅝	(sh) 945.939	N.P.	Mexican Seaboard		Nov. 15, 24	5,100	5	5½	†4⅝	5	0
39⅝	25½	29½	28	(sh) 1,357.461	N.P.	Mid-Continent Petroleum		Aug. 1, 27	8,600	29	29¾	28¼	28½	— ¾
105	97	104	104	$6,718.000	$100	do pfd	$1.75Q	Dec. 1, 27						
3¾	1⅝	3⅜	2⅜	24,354.600	10	Middle States		July 1, 23	11.300	3⅛	3⅛	2¾	2⅞	— ¼
2¾	1¾	2¾	1½	5,445.620	10	do ctfs			1.300	2	2	1⅞	2	— ⅛
1⅞	1	1½	1¼	(sh) 3,500.000	N.P.	Pacific Oil			18.800	1⅜	*1½	1⅜	1⅜	+ ⅛
65⅛	40⅛	46⅜	42	$48,807.400	$ 50	Pan American P. & T.		Oct. 20, 27	5,000	43½	44	†42	42½	— 2
66¾	40¼	46¾	42⅛	121,097.100	50	do B		Oct. 20, 27	55,700	44⅜	44⅜	†42⅛	43⅛	— 1⅛
37⅞	16¾	21	19¾	(sh) 400.000	N.P.	Pan American Western B.		Jan. 30, 27	3,300	20¼	20¼	19⅜	19¾	— ⅜
18⅞	8	16½	14⅝	(sh) 198.770	N.P.	Panhandle P. & R.			2,000	15¾	16⅜	15	15⅞	— ⅜
83	54	81	79	$2,935,200	$100	do pfd		July 2, 23	100	79	79	†79	79	— ½
60¼	36¼	43⅛	40½	(sh) 2,406.796	N.P.	Phillips Petroleum	75cQ	Jan. 3, 28	128.100	43⅛	43¼	41⅛	42¼	— ¾
1⅜	½	¾	⅝	$29,622.925	$ 25	Pierce Oil Corp.			112,100	¾	¾	⅝	¾	0
24	13½	20½	19½	15,000.000	100	do pfd		Feb. 1, 22						
5½	2½	4⅝	3⅞	(sh) 2,500.000	N.P.	Pierce Petroleum			4,900	4⅛	4⅜	4	4⅛	— ¼
33⅞	16¾	26	24¼	$37,450.850	$50	Producers & Refiners		Sept. 15, 23	1,500	25	25¼	24⅜	24⅜	— 1
50	36⅞	43¼	41¾	2,845.350	50	do pfd		May 1, 25	1.290	42¼	*43¼	42¼	43¼	+ ⅜
33½	25	27½	25⅞	75,959.250	25	Pure Oil Co.	37½cQ	Dec. 1, 27	33,300	26⅛	26½	†25⅞	26⅛	— ⅛
115½	111⅜			13.000.000	100	do 8% pfd	$2Q	Jan. 2, 28						
54½	44¼	48¾	47½	(sh) 611.303	13.40	Royal Dutch, N. Y. shares	$1.343	Jan. 28, 28	2,600	46¾	46¾	44⅜	44⅜	— 2¾
47⅛	41⅜	42⅞	42⅞	(sh) 77,590	£2	Shell Transport & T.	97c	Jan. 23, 28						
31¾	24⅝	26⅞	25½	(sh) 10,000.000	N.P.	Shell Union Oil	35cQ	Dec. 31, 27	11.200	26½	26½	25½	25½	— 1¼
26⅜	14¼	24¾	22¼	$7,208.080	$ 10	Simms Petroleum		Apr. 1, 27	8,400	23¼	23⅜	†22¼	23	— ¾
22⅜	15	21¼	19⅞	(sh) 4,501.915	N.P.	Sinclair Consolidated		May 31, 24	41,900	20⅜	20⅞	20⅛	20¾	— ⅛
104½	97	106	102½	$16,604.600	$100	do pfd	$2Q	Nov. 15, 27	700	105½	107½	105½	107½	+ 1¾
37⅝	24⅛	28¼	26¾	27.396.590	25	Skelly Oil Co.	50cQ	Dec. 15, 27	7,500	27¾	28⅛	27⅛	27¾	0
60¾	50⅝	56⅝	54⅞	(sh) 13.016.434	N.P.	S. O. California	62½cQ	Dec. 15, 27	13,300	56⅛	56⅜	†54⅞	55	— 1⅛
41⅜	35⅛	40¼	39⅜	$607.605.400	$ 25	S. O. New Jersey	‡25cQ	Dec. 15, 27	46,100	40	40	†39⅜	39¾	— ⅝
34⅛	29¾	31⅜	29⅞	426.973.275	25	S. O. New York	40cQ	Dec. 15, 27	33,800	30⅞	31⅛	†29⅞	30	— ¾
34⅞	30	32	31½	(sh) 1,206 073	N.P.	Sun Oil	‡25cQ	Dec. 15, 27	39,100	32½	39⅞	32½	37¾	+ 5¾
101⅝	99	101	100	$5,000.000	$100	do pfd	$1.50Q	Dec. 1, 27	200	100½	*101	100½	101	+ 1
6½	3⅛	3¾	3¼	(sh) 1,121,368	N.P.	Superior Oil Corp.		Dec. 20, 20	2,500	3⅜	3½	3¼	3⅜	— ⅛
58	45	55⅝	53	$180,464.200	$ 25	The Texas Corp.	75cQ	Jan. 1, 28	59,600	54⅝	54¾	53¾	54	— ½
18⅞	12	17	14	8,380.340	10	Texas Pacific Coal & Oil	15cQ	Jan. 3, 28	28,800	16¼	16⅝	15	15⅜	— ⅞
29¼	19	22¼	21½	(sh) 2,168,404	N.P.	Tide Water Oil Co.	20cQ	Dec. 31, 27	300	21¾	22	†21½	22	— ¼
90¾	85	90	87	$20,705,200	$100	do 5½% pfd.	$1.25Q	Nov. 15, 27	600	88½	*90	88⅛	90	+ 2¼
19¼	15¾	17¼	16	(sh) 4,796,101	N.P.	Tide Water Associated		Aug. 1, 27	18,200	16⅝	16¾	†16	16⅜	— ⅛
90¾	85	87¾	86½	$72,745,900	$100	do pfd	$1.50Q	Jan. 3, 28	700	86½	86⅝	86½	86½	— ⅛
10¾	3¾	10⅛	8½	(sh) 3,742,029	N.P.	Transcontinental Oil			65,100	9	9⅜	8¾	8⅞	— ⅜
56½	39⅜	45¼	43½	$407,777,750	$ 25	Union Oil of California	50cQ	Nov. 10, 27	5,400	44½	45	43¾	44¼	+ ¼
127½	94	124	120	30,844.000	100	Union Tank Car Co.	$1.25Q	Dec. 1, 27	200	121¼	121¼	†120	120	—1
34½	24½	32⅞	30⅛	(sh) 240,380	N.P.	Warner Quinlan	50cQ	Jan. 3, 28	4.300	30⅞	31¾	30⅜	31½	+ ⅝
27½	20	24¼	20½	(sh) 490.000	N.P.	White Eagle Oil & Refining	25cQ	Jan. 20, 28	1.600	22	22	22	22	0

‡Also extras s-Stock Total Sales 1,173,470

Shreveport-Eldorado Pipe Line Co.—Gross earnings of $1,109,558 reported for 1927, compared with $1,506,844 in 1926. After interest, rentals, federal taxes and other charges there was available for reserves $384,552, compared with $642,144 in 1926.

Northern Pipe Line Co.—William A. Schnader and Benjamin Graham elected directors. All retiring directors were re-elected at annual meeting. Officers also were re-elected. Mr. Graham was chairman of the stockholders' committee that protested the company's policy of retaining its cash assets instead of distributing them among the shareholders.

Cleveland Stock Market

January 20

	Par Value	Bid	Asked	Last Sale
Canfield Oil Co.	100	...	...	...
do pfd.	100	100	...	100
Fred G. Clark	10	2¼	3½	2⅛
National Refining Co.	25	35½	36	35½
do pfd.	100	131	...	130½
Paragon Refining Co.	25	10	11	11
do pfd.	100	...	108	107

x Ex-Dividend.

Oil Dividends

	Amount	Payable	Stock of Record
Beacon 7½% pfd. q.	$1.87½	Feb. 15	Feb. 1
Louisiana Oil pfd. q.	$1.62½	Feb. 15	Feb. 1
National Ref. q.	1½%	Feb. 15	Feb. 1

PITTSBURGH STOCK EXCHANGE

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended January 20. Sales	First	High	Low	Last	Change
9⅞	6⅞	9½	8⅜	$ 10	Arkansas Nat. Gas.	1,155	8⅜	9	8⅞	8⅞	— ⅛
98⅜	80⅞	92	92	100	Columbia Gas.	...	...	...	...	...	...
107⅞	100	...	...	100	do pfd.	...	...	...	...	...	...
15	7½	8⅛	8	10	Devonian Oil.	452	8	8	7¾	7¾	— ¼
117½	115	115⅛	115	100	Duquesne Light pfd.	...	...	...	...	...	...
12¼	6	13	12	N.P.	Houston Gulf Gas.	75	12½	12½	†12	12	— 1
59¼	37¼	54	52½	$ 25	Lone Star Gas.	1,090	54	54	†52⅛	53⅛	— ⅞
3⅞	3	3⅛	3¼	5	Pittsburgh Oil & Gas	100	3½	3½	3½	3½	0
8	5½	7¼	7	10	Salt Creek Cons.	...	...	...	...	...	...
26½	17	20	19⅞	10	Tidal Osage	435	20	20	19⅞	20	0
43	33	33¼	33	N.P.	Waverly Oil Wks. A	...	...	...	...	...	...

PITTSBURGH CURB EXCHANGE

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended January 20. Sales	First	High	Low	Last	Change
...	...	....	....	$ 5	Duquesne Oil.	...	...	...	...	...	...
95	88	....	....	25	Gulf Oil.	...	...	...	...	...	...
10¾	5½	....	....	25	Leonard Oil & Dev.	...	...	...	...	...	...
2.70	.30	1.00	.50	10	Omar Oil & Gas.	1,100	.70	.70	.60	.60	— .15
2¼	1¾	21¼	20	5	Pittsburgh Oil Dev.	...	...	...	...	...	...
31	19	21	20	5	Plymouth Oil.	...	...	...	...	...	...
6	5	....	....	5	States Oil.	...	...	...	...	...	...
3⅛	1½	3⅛	3	1	Texon Oil & Land.	12,470	3⅛	3⅛	3⅛	3⅛	+ ⅛
23¾	18	....	....	10	Tidal Osage Non-vgt.	...	...	...	...	...	...

*New High †New Low xEx-Dividend

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Jan. 21 Sales	First	High	Low	Last	Change
21⅝	17⅞	21¾	18¼	£ 4,126,460	£ 1	Anglo-American Oil	60⅓c	May 31, 27	3,800	21⅜	21⅜	18¾	19⅜	— ⅞
21½	17⅝	20½	18½	.....	£ 1	do cts. non-voting	.....	.....	400	18¾	20½	17⅞	17⅞	— 1⅞
3¾	⅝	1⅝	1½	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	100	1½	1½	1½	1½	— ¼
6½	2½	3½	3½	$ 10,000,000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	55	1,000,000	25	Borne Scrymser	‡$1S.A.	Oct. 15, 27	50	55	55	55	55	— 1
60	45	59	58	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 27	400	58½	58½	58	58	— ½
126	76½	149¾	117¼	3,000,000	25	Chesebrough Mfg	$1Q	Dec. 28, 27	2,600	137	149¾	133	145	+ 7
22⅝	16¾	22½	21¼	36,057,840	10	Continental Oil	25cQ	Dec. 15, 27	.....	.....	.....	.....	.....	.....
137	89	94	94	3,000,000	100	Cumberland Pipe Line	$2Q	Dec. 15, 27	100	94	94	94	94	+ 1½
68½	47	67	64½	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 27	.....	.....	.....	.....	.....	.....
13½	3½	6½	5½	16,000,000	100	Galena Signal Oil	.....	June 30, 25	200	6	6	5½	5½	— ½
59⅜	23	33	27	4,000,000	100	do new pfd	.....	June 30, 26	100	32¼	32¼	30	30	— 3
60⅛	35½	41½	35	2,000,000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
68½	54	68	65⅛	73,117,577	25	Humble Oil & Refining	‡30cQ	Jan. 1, 28	23,600	67⅝	67⅝	65⅛	65¾	— ⅞
182	123¾	185½	176½	20,000,000	100	Illinois Pipe Line	$6S.A.	Dec. 15, 27	250	184¾	185½	181	183½	— 2½
64¾	37¾	65¼	59	(sh) 6,458,267	N.P.	Imperial of Canada	‡25cQ	Dec. 1, 27	16,600	64½	64½	60	60⅝	— 3⅝
94½	61	78¾	76	$5,000,000	$ 50	Indiana Pipe Line	‡$1Q	Nov. 15, 27	200	78¾	78¾	78⅛	78⅛	— ⅝
39	28¼	43	36	(sh) 17,123,444	N.P	International Petroleum	25c	Nov. 15, 27	2,600	43	1⅞	1⅝	1¾	— 1⅛
24	13¼	21¾	20½	$6,363,350	12.50	National Transit Co	25cQ	Dec. 15, 27	3,500	21¾	22	21⅞	21⅞	+ ⅛
44½	31¾	40¾	37½	5,000,000	100	New York Transit	.....	July 15, 26	450	40	40¾	40	40¾	+ 1¾
100	70	99¾	94	4,000,000	100	Northern Pipe Line	‡$3S.A.	Jan. 1, 28	1,000	96¼	99¾	96¼	99¼	+ 1¼
67⅞	52	66¾	63¾	60,000,000	25	Ohio Oil Co	‡50cQ	Dec. 15, 27	3,600	66½	66½	65	65	— ⅜
39	12	39⅞	36	10,000,000	25	Penn Mex. Fuel	.....	May 21, 25	11,900	39⅜	39½	37	37⅞	— 1⅜
55½	45⅝	50½	48¾	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	6,700	50¼	50¼	49⅛	49⅛	— 1
190	132	187	184	81,000,000	100	Prairie Pipe Line	$2.50Q	Oct. 31, 27	650	186½	186¾	184¼	185	— 1½
201½	175½	178	175	4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 27	50	175½	176	175	176	0
27¼	15½	25⅜	21	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	1,500	22	25⅛	22	25⅛	+ 3⅛
41½	35	40⅛	36¾	20,00,000	25	South Penn Oil	50cQ	Dec. 31, 27	2,700	39	40⅛	39	39	— 0
83	55½	79½	70	3,500,000	100	South West Pa. Pipe Lines	‡$1Q	Dec. 31, 27	.....	.....	.....	.....	.....	.....
81½	64⅝	80½	77⅝	228,415,463	25	S. O. Indiana	‡62½cQ	Dec. 15, 27	56,000	80	80	77⅝	78⅞	— ¼
20⅞	14⅝	16⅝	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	2,600	16	16¾	16	16¾	+ ¾
130	111½	132¾	124	17,012,559	25	S. O. Kentucky	$1Q	Dec. 31, 27	2,800	130⅜	130⅜	127⅛	128¾	— 1⅝
49½	40	42¾	41¾	4,559,850	25	S. O. Nebraska	62cQ	Dec. 20, 27	.....	.....	.....	.....	.....	.....
87½	72	79	75¾	14,000,000	25	S. O. Ohio	62½cQ	Jan. 2, 28	800	78¾	78¾	75¾	77	— 1¼
122	117¼	120¼	120¼	7,000,000	100	do pfd	$1.75Q	Dec. 1, 27	.....	.....	.....	.....	.....	.....
21	14½	17¾	17½	30.734.000	25	Swan Finch Co	.....	Nov. 1, 19	150	17½	17¾	17½	17¾	+ ¼
149⅞	95⅛	148½	139	62.470.800	25	Vacuum Oil	‡50cQ	Dec. 20, 27	13,800	148½	148½	143	144½	— ⅝

*New high †New low xEx dividend ‡Also extras.

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Sales	Week Ended Jan. 21 First	High	Low	Last	Change
2⅛	.55	1¼	.82	$ 5	Amer. Con. Oilfields	175,000	.82	1¼	.82	1⅛	+ ¼
7½	2¾	4⅞	3½	N.P.	Amer. Maracaibo	6,000	4⅜	4½	4⅛	4⅜	— ¼
2¾	1	4	3⅛	$ 10	Argo Oil	400	4	4	3¾	4	0
9¾	6¾	9⅞	8⅝	10	Arkansas Nat. Gas	200	8⅝	9	8⅝	9	0
20½	15½	.....	.....	N.P.	Beacon Oil	.....	.....	.....	.....	.....	.....
40	20½	39¾	38	N.P.	British American	1,700	39¾	39¾	38	38	— 1½
28¼	15½	23	18½	25c	Carib Syndicate(new)	4,000	22¼	22½	19⅛	20½	— ½
26	15½	.....	.....	.....	do ctfs. of deposit	.....	.....	.....	.....	.....	.....
58¾	40¼	56	54	$ 20	Cities Service	83,000	54⅝	55⅛	54	55⅛	0
95⅝	87	95½	94½	100	do pfd	1,400	94¾	94⅞	94½	94⅞	— ¼
8⅞	7⅜	8⅞	8⅞	10	do pfd. B	.....	.....	.....	.....	.....	.....
29¼	22½	.....	.....	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1⅛	1⅛	1⅜	1	Colombia Syndicate	2,700	1⅜	1⅛	1⅛	1⅜	0
9¾	6⅜	.....	.....	10	Consolidated Royal	100	7⅛	7⅛	7⅛	7⅛	0
14⅞	9½	12⅜	10	N.P.	Creole Syndicate	64,000	12¼	12⅜	11¼	11½	— ¾
3	.50	1⅜	.80	N.P.	Crown Central	1,700	1	1⅜	1½	1⅜	+ ⅜
12	4	9	8¼	N.P.	Darby Petroleum	300	9	9	8⅞	9	0
11½	4	9	7⅞	.....	do trust ctfs.	200	7⅞	7⅞	7⅞	7⅞	— 1⅛
2½	.74	1	1	N.P.	Derby Oil & Refining	500	1	1	1	1	0
16¾	4	.....	.....	N.P.	do pfd	.....	.....	.....	.....	.....	.....
3¾	1	2	1⅝	N.P.	Gibson Oil	1,400	1⅞	1⅞	1⅝	1⅝	— ¼
2	.40	.53	.51	N.P.	Gilliland ctfs.	.....	.....	.....	.....	.....	.....
118	86¼	117¼	110¾	$ 25	Gulf Oil Corp	9,100	114½	114½	110¾	111½	— 2¼
2⅛	.80	2	1⅝	10	Intercontinent Pet	2,600	1⅞	1⅞	1⅝	1⅝	— ⅛
2¼	1⅛	1⅞	1⅛	N.P.	Kirby Petroleum	100	1¾	1¾	1¾	1¾	+ ⅜
10⅛	5⅛	6⅞	5¾	N.P.	Leonard Oil & Dev.	4,600	5¾	6	5¾	5⅞	— ⅛
27½	20	23	22	N.P.	Lion Oil & Refg	500	22¾	22¾	22½	22½	— ¼
59⅜	37	54	52½	$ 25	Lone Star Gas	900	54	54	52½	52½	— 1¼
2⅞	.80	1⅜	1⅜	1	Magdalena Synd	11,100	1¼	1½	1⅜	1¾	0
21½	20⅞	22⅛	22⅜	N.P.	Manhattan Oil	100	22⅛	22⅛	22⅛	22⅛	— ⅛
52	12	45	44	N.P.	Margay Oil	300	44½	44½	44	44	— ½
3	1½	.....	.....	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	6¾	5¾	N.P.	Mexico-Ohio Oil	200	5¾	5¾	5¾	5¾	0
1½	1	1⅜	1⅜	$ 1	Mountain & Gulf	200	1⅜	1⅜	1⅜	1⅜	0
29¼	22¾	28⅝	27⅛	10	Mountain Producers	6,300	27⅜	27⅜	27⅛	27¼	— ⅝
5⅞	4⅝	5⅝	5⅜	5	New Bradford	900	5⅛	5⅝	5⅜	5¼	+ ⅜
6¼	4	.....	.....	10	New England Fuel	.....	.....	.....	.....	.....	.....
16	9¼	9⅞	9	1	New Mex. & Ariz	1,500	9⅛	9½	9	9⅛	0
13⅞	9	14¼	11½	25	New York Oil	2,400	13¼	13½	13	13¼	— ¼
12⅜	9½	11⅞	10¾	N.P.	North Cent. Texas	1,200	11⅜	11⅞	11⅜	11¾	+ ⅜
23⅞	21¼	.....	.....	.....	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅝	3¼	5¾	4¼	N.P.	Pandem	14,600	5⅜	5¾	4⅝	5¾	+ ⅜
12⅛	7	9¼	8¾	N.P.	Panapec Oil	.....	.....	.....	.....	.....	.....
9	7⅛	11⅜	10⅝	$ 25	Paragon Refg	1,200	11	11⅜	10⅝	10⅞	+ ⅛
.37	.25	.....	.....	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13½	5⅛	.....	.....	$ 10	Pennok Oil	.....	.....	.....	.....	.....	.....
.....	.....	4¾	3⅛	5	Pittsburgh Oil & Gas	1,100	3⅞	4⅛	3¼	3½	— ⅝
24⅜	7	.....	.....	25	Red Bank Oil	.....	.....	.....	.....	.....	.....
15½	3½	5½	5	N.P.	Reiter-Foster	2,100	5⅛	5¼	5	5	— ⅛
28⅝	15	25½	24½	$ 25	Richfield Oil	.....	.....	.....	.....	.....	.....
7	4½	5⅝	4⅜	N.P.	Ryan Consolidated	600	5	5⅝	4⅞	5¼	+ ¼
8	5¼	7¼	7	$ 10	Salt Creek Cons	1,300	7⅛	7¼	7	7⅛	+ ⅛
35½	27¼	35	33	10	Salt Creek Prod	4,500	34	34	33	33	— 1⅛
7	1¾	.....	.....	5	Savoy	.....	.....	.....	.....	.....	.....
26¼	17	20	19¼	10	Tidal Osage	500	19⅞	19⅞	19¼	19¼	— ⅝
23¾	15	18	17½	10	do non-voting	200	17¾	17¾	17½	17½	— ¼
92	63½	86	84¾	100	Transcontinental pfd.	100	84¾	84¾	84¾	84¾	+ 1¼
23¼	7	20½	20	10	Venezuela-Mexico	700	20	20½	20	20½	+ ½
7⅜	4¼	6¼	4⅞	5	Venezuelan Petrol	4,300	5¾	5⅞	5⅝	5⅝	— ⅛
32⅝	19½	22⅞	21¼	N.P.	Wilcox Oil & Gas	300	21¼	22¼	21¼	22¼	— ⅝
8	4¾	7	6	$ 1	Woodley Petroleum	400	7	7	6¼	6¾	— ⅝
6	1¾	2½	2¼	25	Y Oil & Gas (new)	400	2¾	2½	2¼	2½	+ ⅛

*New High †New Low xEx Dividend

Shaffer Oil & Refining Co.—W. E. Moodt, vice-president, had been elected a director and B. L. Majewski, general sales manager, vice-president and director.

New York Curb Bonds

Week Ending January 20

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	103	102½	102½	— ½
Cities Serv. 5s '66	91	90¾	90¾	0
Cities Serv. 6s '66	103¼	103	103¼	+ ¼
Cities Serv. G5½s '42	95¼	94⅝	94⅞	— ½
Empire Oil 5½s '42	93½	92¾	93½	+ ½
Gulf Oil 5s '37	102	101¾	102	+ ¼
Independent Oil 6s '39	99⅛	98¾	98¾	— ¼
Phillips Pet. 5½s '39	95	94¾	94¾	— ¼
Richfield Oil 6s '41	99	98⅝	99	0
S. O. N. Y. 6½s '33	104	103½	104	0
Sun Oil 5½s '39	101¾	101	101	— ½
Trans. Con't. Oil 7s '30	115	112	114	0
Warner-Quin. 6s '42	100	99½	99¾	— ⅜

New York Bonds

Week Ending January 20

	High	Low	Last	Ch'ge
Amer. Reb. deb. 6s	102¾	102½	102½	0
Atlantic Refg. deb. 5s	103¾	103¼	103⅜	+ ⅛
Barnsdall Corp. 6s	102½	101¾	102	— ⅜
Barnsdall Corp. 8s ex-war.	91½	91	91½	0
Cal. Pet. 5s	100¾	97	100¾	—1⅝
Cal. Pet. 5½s	102½	101¾	102¼	+ ¼
General Asphalt 6s	115	113½	115	—1¾
General Petroleum 6s	102½	102¼	102¼	— ⅛
Humble Oil & Refg. 5½s	103	102¾	103	+ ¼
Humble Oil 5s	100½	100¼	100½	+ ¼
Mid-Cont. Pet. 8½s	105¼	105	105	— ½
Pan. Amer. P & T 7s	105⅞	105⅜	105⅞	+ ⅜
Pan Amer. P & T 6s	104	103½	103½	0
Pan Amer. P & T 6s	95	94⅜	94⅜	— ⅝
Pierce Oil deb. 6s	104¾	104¾	104¾	+ ¼
Simms Pet. cvt. 6s	107¼	106	107¼	0
Sinclair Con. Oil Co. 7s	101	100½	101	+ ¼
Sinclair Con. Oil con 6½s	99	98⅜	98¾	0
Sinclair Con. oil 6s D	98⅞	98⅜	98⅞	+ ⅞
Sinclair Crude Oil 6s	100	99⅞	99⅞	— ⅛
Sinclair Pipeline 5s	95¼	94¼	95⅛	+ ⅜
Skelly Oil 8½s	95⅜	95	95¼	0
S. O. N. Y. 4½s	98	97⅝	98	+ ⅛
S. O. N. J. deb. 8s	104	103½	103¾	— ¼
Superior Oil 7s	101⅞	101¾	101⅞	0
Union Oil of Calif. 6s A	110	110	110	+ ¼
Union Oil of Calif. 1st 6s	110¼	110⅛	110¼	0
Union Oil of Calif. 5s C	100	99⅜	100	0
White Eagle 5½s	97	96	96	— ⅝